

August 19, 2009

Mr. Dan McCaskill, CIH BNSF Railway Company 2600 Lou Menk Drive Fort Worth, TX 76161

Re: BNSF Personnel OSHA Exposure Sampling Report

BNSF Kootenai River Subdivision- Mileposts 1307 to 1341

EPA Operable Unit 6 May 19-22, 2009

**EMR Project No. 5539.130** 

Dear Mr. McCaskill:

EMR, Inc. (EMR) was contracted by the BNSF Railway Company (BNSF) to conduct Occupational Safety and Health Administration (OSHA) Asbestos Exposure Sampling on a BNSF Super Surfacing Gang conducting track alignment and ballast maintenance. The maintenance work and associated sampling occurred along select portions of the BNSF right-of-way located between BNSF Milepost (MP) 1307 and MP 1341. These locations are within the United States Environmental Protection Agency (EPA)-defined Operable Unit 6 (OU6). OU6 is the designation for BNSF-owned property that may have been impacted by the loading and hauling of asbestos contaminated vermiculite. OU6 is roughly centered on Libby, Montana (MP 1319.5) and extends east to approximately MP 1301 and west to approximately MP 1341 (Figure 1).

Potential worker hazards within OU6 consist of the disturbance of previously-deposited tremolite and related mineral fibers during rail maintenance activities. Asbestos fibers within the track structure are associated with rail transport of W.R. Grace vermiculite ore or processed Zonolite shipped on this line through approximately 1990, the date of the mine closure.

The primary purpose of this OSHA Exposure Sampling event was to gather sufficient and representative air quality data to determine whether asbestos fiber releases were being created by track maintenance activities. This data allows BNSF Industrial Hygiene to determine worker exposure risk and whether current engineering controls and prescribed personal protective equipment are sufficient to protect BNSF workers. A secondary function of this sampling event was to collect limited air quality data from near the BNSF property boundary (property boundary samples). In the event that maintenance activities did create a fiber release, this data would be used to determine whether the release could impact off-site receptors.

#### **ON-SITE PERSONNEL**

A two person team consisting of EMR employees David Welch and Mike McKay were mobilized to the Site to conduct the sampling effort. Dan McCaskill, Manager Industrial Hygiene, was also present during the first two days of the event to monitor sampling activities and BNSF work practices. No EPA or CDM personnel were present at any time during sampling activities.

#### **SAMPLING OVERVIEW**

EMR mobilized to Libby, Montana on May 18, 2009, sampling commenced on May 19 and continued through May 22, 2009. Sampling efforts focused on air quality during work conducted by BNSF's Super Surfacing Gang – SC30. The gang consisted of two machines; 1) a production tamper; and 2) profiler/broom machine. The production tamper uses hydraulically

powered vibrators to force ballast under the ties to vertically align the track surface. The profiler and broom machine is used to properly reshape the ballast and remove any excess ballast from the top of the track structure. The production tamper can typically accomplish its tasks in one pass over a length of track, covering approximately 1 mile each hour. However, the profiler/broom machine often requires several passes over a given length of track and thus typically covers a less than 1 mile each hour. Both machines have a crew of three people that consist of two operators and one profiler. A total of six personal samples were collected each day of the sampling event.

Two types of samples were collected during the program: personal air samples of BNSF SC-30 personnel and property boundary air samples collected adjacent to the SC-30 gang work areas. The methods and equipment used to collect these samples is discussed below.

#### **SAMPLING METHODS AND EQUIPMENT**

#### Personal Air Sample Collection

The personal air sampling program utilized Gillian BDX II personal air pumps with flow rates varying from 2.3 L/m to 3.0 L/m. Flow rates were checked at the beginning and end of the sampling period with a calibrated rotameter. The pumps were equipped with Zefon 25mm Phase Contrast Microscopy (PCM) cassettes and 0.8 µm Mixed Cellulose Ester (MCE) filters, which were utilized for both PCM analysis by NIOSH 7400 and Transmission Electron Microscopy (TEM) analysis by Asbestos Hazard Emergency Response Act (AHERA) methods. EMR attempted to perform PCM analysis, but due to filter overloading PCM analysis was not possible. All samples were submitted for AHERA TEM analysis by EMSL Analytical Inc.'s (EMSL) Libby, Montana laboratory. A total of six (6) personal air samples were collected on each of the sampling days (Table 1).

#### **Property Boundary Air Sample Collection**

Property boundary air samples were collected on May 19 and May 20 to evaluate air quality near the BNSF property boundary during maintenance activities. Site access issues precluded collection of property boundary samples during the remaining days of the sampling event. Three (3) of the property boundary samples were collected from fixed locations and one (1) sample was composited from several sample locations. The composite sample was moved several times to allow the machines pass the sample point multiple times. The purpose of the composite sample was to evaluate the air quality at several different locations since the machines were at a given location for only a short period of time.

Property boundary air samples were collected using EMS Megalite high-volume air pumps equipped with Zefon 25mm PCM cassettes with 0.8 µm MCE filters. The high volume air pumps were powered by portable generators. The filters were suspended approximately four (4) feet above ground surface with the filter opening facing downward to prevent the deposition of foreign material on the filter. Stationary air pumps were checked and adjusted daily to achieve flow rates between 8 and 8.5 L/m as determined with a calibrated rotameter. Property boundary samples 01A and 02A from May 19<sup>th</sup> were analyzed via Phase Contrast Microscopy (PCM) using NIOSH 7400 methods. All property boundary samples were submitted to EMSL for AHERA TEM analysis.

11 E. Superior Street, Suite 260 ▼ Duluth, MN 55802 ▼ (218) 625-2332 ▼ FAX (218) 625-2337 ▼ www.emr-inc.com

#### **Blank Collection**

Field blanks were collected on three of the four sampling days. The blanks were collected by opening and resealing the filter cassette under normal sampling conditions. All blanks were submitted to EMSL for TEM analysis.

AHERA TEM analytical methods were chosen since they are widely applied to determine compliance with the OSHA Permissible Exposure Limit (PEL). The AHERA TEM method simply counts the number of fibers in known sample area that are greater than 5µm in length and through visual inspection at a magnification of 20,000. As per 40 CFR Chapter I – Part 763, acceptable sensitivity for this method is no greater than 0.005 s/cc.

Due to variable levels of filter loading, many of the samples required indirect preparation to facilitate TEM analysis. Indirect and indirect ashing preparation methods were employed on three (3) and 16 samples, respectively. A brief description of each preparation process is described below.

#### **Indirect Preparation**

- Sample resuspended in 100mL particle water
- Fractions filtered (10, 15, 25 and 50mL) on 0.2 μm filter backed by 5.0 μm filter.
- Selected volume processed to grids

#### **Indirect Preparation with Ashing**

- Loose materials in cassette consolidated with overloaded filter were prepared for ashing;
- Samples placed in LFE asher until filters have been completely ashed;
- Ashed sample re-suspended in 100 mL particle water.
- Fractions filtered (10, 15, 25 and 50mL) on 0.2 µm filter backed by 5.0 µm filter.
- Selected volume processed to grids

Both indirect preparation methods require dilution that results in an increase of analytical sensitivity.

#### **DAILY ACTIVITY**

The following is a daily summary of sampling activities from May 19 to May 22, 2009. Attached are site location maps, photolog of work activities (Attachment A), air monitoring data sheets with PCM air monitoring results (Attachment B), and complete laboratory reports and chain of custody forms from EMSL (Attachment C).

#### May 19, 2009

Six personal air samples (01 through 06) were collected from the following BNSF personnel during their work between MP 1307 and MP 1313:

Rex Hanna	Tamper Operator	BNSF Employee #7516762
Jesus Torva	Tamper Operator	BNSF Employee #5054390
LeRoy Paulson	Tamper Operator	BNSF Employee #2514925
<b>Duane Williams</b>	Profiler Operator	BNSF Employee #4882486
<b>David Castro</b>	Profiler Operator	BNSF Employee #7503923
Keith Francis	Profiler Operator	BNSF Employee #1178722

The same personnel were sampled each subsequent day (Table 1).

This work area is between 6.5 miles and 12.5 miles east of Libby, Montana (Figure 1). All personal air samples were submitted to EMSL for TEM analysis since they were not able to be read by PCM due to filter overloading.

Property boundary sample 01A (Area Background MP 1307) is representative of background air quality at the eastern end of the work location. Property boundary sample 02A was collected from several locations where work was completed by the profiler/broom machine. Due to the limited time spent at any one location by the profiler/broom, it was decided that this sample would be moved each time the machine passed the sampler rather than sampling one pass of the machine. Both property boundary samples were analyzed using PCM and TEM methods. Field and laboratory blanks were collected and submitted for analysis.

#### May 20, 2009

Six personal air samples were collected during work conducted between MP 1313-1331 and submitted for TEM analysis. This work area lies from 6.5 miles east to 11.5 west of Libby, Montana. Sample labeling practices were modified to ensure the uniqueness of each sample identification. Sample identification included a "P" or "A" to signify either a personal or area (property boundary) samples, followed by the first and last initials of the person or area and ending with the sample date.

Two property boundary samples were collected at Milepost 1314.5 near an area referred to as the Bluffs. The Bluffs is the location of a former vermiculite ore load out that was served by BNSF predecessor railroads. This location was chosen for property boundary sampling due to the high likelihood of asbestos contaminated vermiculite within the track structure. The property boundary samples are representative of air quality during work by both the tamper and the profiler/broom. Both samples were submitted to EMSL for TEM analysis.

#### May 21, 2009

Six personal air samples were collected from BNSF personnel during their work between MP 1331 and MP 1336 and submitted for TEM analysis. This work area ranged from 11.5 miles to 16.5 miles west of Libby, Montana (Figure 1). A blank was collected and submitted for analysis.

#### May 22, 2009

Six personal air samples were collected from BNSF SC-30 personnel and submitted for TEM analysis. The subject work area ranged from MP 1336 to MP 1341 or approximately 1.9 miles east, to 3.1 miles west of Troy, Montana (Figure 1). A blank was collected and submitted for analysis.

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#### **SAMPLING RESULTS**

The following is a discussion of the results of laboratory analysis of each sample type. Laboratory reports and chain-of-custody forms are found in Attachment C.

#### Personal Air Samples

A total of 24 personal air samples were collected and submitted for TEM analysis. All samples were non-detect for asbestos fibers (Table 1). Of the 24 samples, five (5) samples were directly prepared, three samples were indirectly prepared and 16 samples were indirectly prepared with ashing. The analytical sensitivity was decreased on a total of 16 samples, since the target sensitivity of 0.005 s/cc was exceeded. Sensitivity was decreased on 15 of 16 samples due to indirect ashing preparation. Sensitivity was decreased on the remaining sample due to a low sample volume.

#### **Property Boundary Air Samples**

A total of four property boundary samples were collected and analyzed. Two samples, 01A and 02A, were also read via PCM, which resulted in fiber concentrations of 0.006 f/cc and 0.014 f/cc (Table 1). Both reported concentrations are well below the OSHA PEL of 0.1 f/cc. All four property boundary samples were submitted for TEM analysis. All four samples were directly prepared, met the target sensitivity and were non-detect for asbestos (Table 1).

#### Blanks

A total of three field blanks and one laboratory blank were submitted for TEM analysis. All blanks were non-detect for asbestos (Table 1).

EMR sincerely appreciates the opportunity to assist you on this project. If you have any questions, please call either Dave Welch at (425) 861-4561 or me at (218) 625-2331.

Sincerely, EMR, Inc.,

Scott Carney PG, CHMM **Project Manager** 

C: D. Smith - BNSF

Table 1 Att:

Figure 1

Attachment A – Project Photolog

Attachment B – Air Monitoring Data Sheets

Attachment C – EMSL Laboratory Reports and Chain of Custody Forms

**TABLES** 

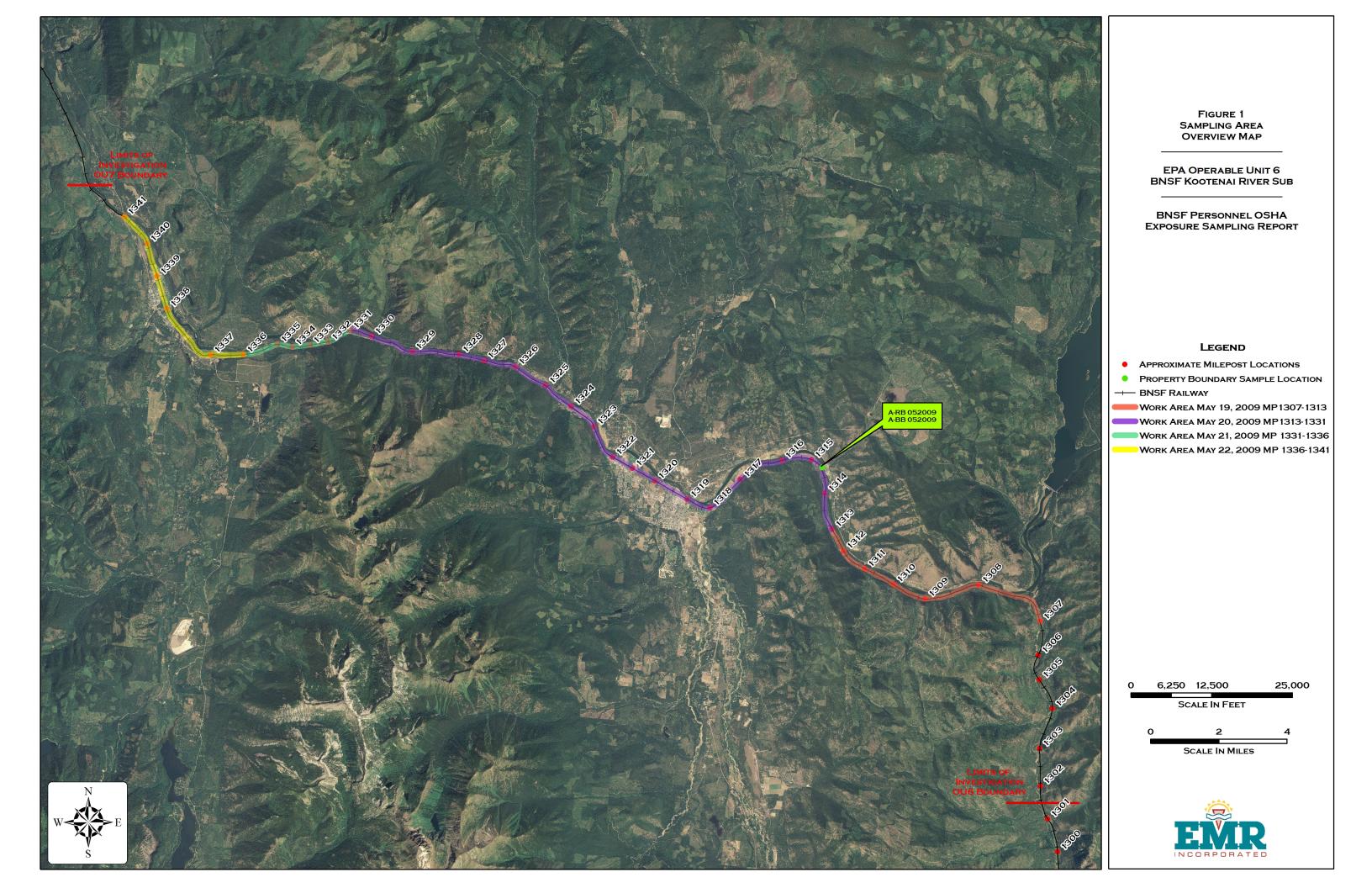
#### Table 1. Summary of Air Sampling Results BNSF Supersurfacing Gang SC-30 BNSF Kootenai River Subdivision May 19-22, 2009 EMR Project #5539-130

				Analytical		Sensitivity	Results		BNSF			Preparation
Sample ID	Sample Date	Analysis Date	Laboratory	Method	Volume (L)	(S/cc)	(S/cc)	Personnel Name	Employee #	Task	Milepost	D/A/IA
01A	5/19/2009	5/19/2009	EMR	NIOSH 7400	1,584	NA	0.006	Stationary Air	NA	NA	1307	NA
02A	5/19/2009	5/19/2009	EMR	NIOSH 7400	1,590	NA	0.014	Stationary Air	NA	NA	1307-1313	NA
1	5/19/2009	5/27/2009	EMSL	TEM AHERA	1,584	0.007	ND	Rex Hanna	7516762	Tamper Operator	1307-1313	IA
2	5/19/2009	5/27/2009	EMSL	TEM AHERA	1,590	0.007	ND	Jesus Tovar	5054390	Tamper Operator	1307-1313	IA
3	5/19/2009	5/27/2009	EMSL	TEM AHERA	1,584	0.007	ND	LeRoy Paulson	2514925	Tamper Operator	1307-1313	IA
4	5/19/2009	5/27/2009	EMSL	TEM AHERA	1,382	0.2	ND	Duane Williams	4882486	Profiler Operator	1307-1313	IA
5	5/19/2009	5/27/2009	EMSL	TEM AHERA	1,373	0.81	ND	David Castro	7503923	Profiler Operator	1307-1313	IA
6	5/19/2009	5/27/2009	EMSL	TEM AHERA	1,300	0.85	ND	Keith Francis	1178722	Profiler Operator	1307-1313	IA
01A	5/19/2009	5/20/2009	EMSL	TEM AHERA	4,216	0.0018	ND	Stationary Air	NA	NA	1307	D
02A	5/19/2009	5/20/2009	EMSL	TEM AHERA	3,360	0.0022	ND	Stationary Air	NA	NA	1307-1313	D
03A	5/19/2009	5/20/2009	EMSL	TEM AHERA	NA	NA	ND	Field Blank	NA	NA	1307-1313	D
04A	5/19/2009	5/20/2009	EMSL	TEM AHERA	NA	NA	ND	Laboratory Blank	NA	NA	1307-1313	D
P-DC 052009	5/20/2009	5/20/2009	EMSL	TEM AHERA	1,516	0.0049	ND	David Castro	7503923	Profiler Operator	1313-1331	D
P-KF 052009	5/20/2009	5/20/2009	EMSL	TEM AHERA	1,568	0.0071	ND	Keith Francis	1178722	Profiler Operator	1313-1331	IA
P-LP 052009	5/20/2009	5/20/2009	EMSL	TEM AHERA	1,345	0.0046	ND	LeRoy Paulson	2514925	Tamper Operator	1313-1331	IA
P-DW 052009	5/20/2009	5/20/2009	EMSL	TEM AHERA	1,340	0.14	ND	Duane Williams	4882486	Profiler Operator	1313-1331	IA
P-JT 052009	5/20/2009	5/20/2009	EMSL	TEM AHERA	1,170	0.0042	ND	Jesus Tovar	5054390	Tamper Operator	1313-1331	D
P-RH-052009	5/20/2009	5/20/2009	EMSL	TEM AHERA	1,148	0.0048	ND	Rex Hanna	7516762	Tamper Operator	1313-1331	I
A-RB 052009	5/20/2009	5/20/2009	EMSL	TEM AHERA	1,560	0.0047	ND	Stationary Air	NA	NA	1314.5	D
A-BB 052009	5/20/2009	5/20/2009	EMSL	TEM AHERA	1,560	0.0047	ND	Stationary Air	NA	NA	1314.5	D
B-BK 052009	5/20/2009	5/20/2009	EMSL	TEM AHERA	NA	NA	ND	Field Blank	NA	NA	1313-1331	D
P-RH-052109	5/21/2009	6/2/2009	EMSL	TEM AHERA	1,713	0.0046	ND	Rex Hanna	7516762	Tamper Operator	1331-1336	I
P-KF 052109	5/21/2009	6/2/2009	EMSL	TEM AHERA	1,710	0.011	ND	Keith Francis	1178722	Profiler Operator	1331-1336	IA
P-JT 052109	5/21/2009	6/2/2009	EMSL	TEM AHERA	1,699	0.13	ND	Jesus Tovar	5054390	Tamper Operator	1331-1336	IA
P-LP 052109	5/21/2009	6/2/2009	EMSL	TEM AHERA	1,430	0.13	ND	LeRoy Paulson	2514925	Tamper Operator	1331-1336	IA
P-DW 052109	5/21/2009	6/2/2009	EMSL	TEM AHERA	1,418	0.13	ND	Duane Williams	4882486	Profiler Operator	1331-1336	IA
P-DC 052109	5/21/2009	6/2/2009	EMSL	TEM AHERA	1,493	0.0074	ND	David Castro	7503923	Profiler Operator	1331-1336	L
B-BK 052109	5/21/2009	6/2/2009	EMSL	TEM AHERA	NA	NA	ND	Field Blank	NA	NA	1331-1336	D
P-JT 052209	5/22/2009	6/2/2009	EMSL	TEM AHERA	613	0.0048	ND	Jesus Tovar	5054390	Tamper Operator	1336-1341	D
P-RH 052209	5/22/2009	6/2/2009	EMSL	TEM AHERA	602	0.0049	ND	Rex Hanna	7516762	Tamper Operator	1336-1341	D
P-LP 052209	5/22/2009	6/2/2009	EMSL	TEM AHERA	540	0.0055	ND	LeRoy Paulson	2514925	Tamper Operator	1336-1341	D
B-BK 052209	5/22/2009	6/2/2009	EMSL	TEM AHERA	NA	NA	ND	Field Blank	NA	NA	1336-1341	D
P-DC 052209	5/22/2009	6/2/2009	EMSL	TEM AHERA	1,288	0.022	ND	David Castro	7503923	Profiler Operator	1336-1341	IA
P-DW 052209	5/22/2009	6/2/2009	EMSL	TEM AHERA	1,103	0.025	ND	Duane Williams	4882486	Profiler Operator	1336-1341	IA
P-KF 052209	5/22/2009	6/2/2009	EMSL	TEM AHERA	1,100	0.017	ND	Keith Francis	1178722	Profiler Operator	1336-1341	IA

Preparation Notes: D = Direct Preparation, I = Indirect, IA = Indirect Ashed

ND - Not Detected NA - Not Applicable





## ATTACHMENT A

PROJECT PHOTOLOG

Site Name:BNSF Kootenai River SubSite Location:Libby, MontanaDate:May 19, 2008Project No.:5539-130



Photo No.1. View of the profiler/broom machine working east of Ripley siding.



Photo No. 2 Close up view of the broom portion of the machine, east of Ripley siding.

Site Name:BNSF Kootenai River SubSite Location: Libby, MontanaDate:May 20/22, 2008Project No.: 5539-130



Photo No. 3 Overview of the profiler/broom machine in action passing the "Bluffs".



Photo No. 4 Overview of the profiler portion of the machine working through the "Bluffs".

Site Name:BNSF Kootenai River SubSite Location: Libby, Montana

**Date:** May 20/22, 2008 **Project No.:** 5539-130



Photo No.5 View of the production tamper working west of Troy.



Photo No. 6 Overview of typical stationary sampling location at the Bluffs.

## ATTACHMENT B

AIR MONITORING DATA SHEETS

Date: 5/19/09 Work Area Mileposts: 1307-1313 Rex Hanna Sampled Person's Name: BNSF Employee ID 7516762 Job Title perator Machine Type 40045 Pump Number 01 Sample # Starting Flow Rate 2.8 07:19 Sample Start Time 2.7 Ending Flow Rate 16:55 Sample End Time Sampled Person's Name: Jesus lovra BNSF Employee ID <u> 5054390</u> Job Title Operator Machine Type 400457 Pump Number <u>02</u> Sample # Starting Flow Rate Z.8 Sample Start Time 07:20 Ending Flow Rate **Z.7** Sample End Time 16:58 Paulson Sampled Person's Name: Leroy BNSF Employee ID 25149 Job Title perator Machine Type 40045 Pump Number 03 Sample # Starting Flow Rate Sample Start Time 7:22 Ending Flow Rate Sample End Time 6:58 Sampled Person's Name: Duane Williams BNSF Employee ID 488Z486 Job Title Derator Machine Type 80000P Pump Number Sample # Starting Flow Rate Sample Start Time Ending Flow Rate Sample End Time

Date: 5 | 19 | 09 Work Area Mileposts: 1307-1313 Sampled Person's Name: David Castro BNSF Employee ID 750 3923 Job Title Profiler Machine Type 800008 Pump Number Sample # Starting Flow Rate 2.4 Sample Start Time 07:25 Ending Flow Rate Sample End Time Keith Sampled Person's Name: Francis 1178722 BNSF Employee ID ProFiler Job Title Machine Type X900008 Pump Number Sample # Starting Flow Rate Sample Start Time 07:29 Ending Flow Rate 2.3 Sample End Time 6:54 Sampled Person's Name: BNSF Employee ID Job Title Machine Type Pump Number Sample # Starting Flow Rate Sample Start Time Ending Flow Rate Sample End Time Sampled Person's Name: BNSF Employee ID Job Title Machine Type Pump Number Sample # Starting Flow Rate Sample Start Time Ending Flow Rate Sample End Time

Date: 5 | 19 | 09 Work Area Mileposts: 1307-1313

Sampled Person's Name:	Area	Backgro	und s	ample	MP	1307	
BNSF Employee ID				-			
Job Title							
Machine Type							
Pump Number	11						
Sample #	OIA						
Starting Flow Rate	9.0						
Sample Start Time	07:44						
Ending Flow Rate	ଓ.୦						
Sample End Time	16:00						
			D		A 4.5	12:5	215
Sampled Person's Name:	Area	Mobil	MUMP	Sample	MP	1307 - 1	513
BNSF Employee ID						<del>-</del> -	
Job Title				_			
Machine Type							
Pump Number	10						
Sample #	02A	_	_	,		-	
Starting Flow Rate	8		_			_	
u ~	<u>08:13</u>			-			
Jumpio Duit I IIII	<u> </u>		_				•
Ending Flow Rate	8						
Sample End Time	15:13						
Sampled Person's Name	:						
			_	-			
BNSF Employee ID							
BNSF Employee ID Job Title							
BNSF Employee ID							
BNSF Employee ID Job Title							
BNSF Employee ID Job Title Machine Type							
BNSF Employee ID Job Title Machine Type Pump Number							
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### ASBESTOS AIR SAMPLING CHAIN-OF-CUSTODY

BLANK AVERAGE (FIBERS/100 FIELDS) CLEARANCE SAMPLES CLEARANCE LEVEL

INI-ENCLOSURE NO ENCLOSURE GLOVEBAG

**ENCLOSURE** 

PROJECT NO.

CLIENT:

PROJECT TITLE:

**PASS** OR FAIL

5539.130

BNSF OSHA AIR Monitoring BNSF

**ENVIRONMENTAL MANAGEMENT RESOURCES** 

PROJ. SITE MGR.: David Welch

WORK AREA: M.P. 1307 - 1313

Sample	Pump	Time	Time	Total	Flow Rate	Volume	Sample Location/Description	Fibers	Fields	Fibers/cc	TWA
Number	Number	On	Off	Minutes	(l/m - avg.)	(liters)		(-blank)			Fibers/cc
							MP 1307				
OIA	11	07:44	16:00	496	8.5	4216	Area Background MP 1307-1313	51	160	0.006	
							MP 1307-1313				
OZA	ιo	08:13	15:13	420	8.0	3360	Area Mobil Pump sample	98	100	0.014	-
63A							Field Blank	0	100		
64A							Lab Blank	0	100		
						,					
							<u> </u>				
Samples C	ollected B		-	):	Date: 5   19	~ G	Received by (Name/Signature):			Date:	
Received b	by (Name/S	Signature)	:'		Date:		Michael McKan			5/101	~ 0
Turnaround	d Time (	) On-site	() Imme	diate 💢)	24 Hour (	) Normal	Michael McKay  Comments: Area monitoring	For	MP.	1307-17	313.
Laboratory			Custody Seal Inta		Sample Condition:	Good					
			Cour inta	-	Condition.						

### BNSF OSHA AIR Monitoring PROJECT NAME

### AIR SAMPLE COUNT SHEET

5539.130 PROJECT NO.

COUNTING METHOD:	TALLY COUNTER		
SAMPLE NO. DATE COLLECTED	SAMPLE NO. DATE COLLECTED	SAMPLE NO. DATE COLLECTED	SAMPLE NO. DATE COLLECTED
X 4216 AIR VOLUME	X 25mm 37mm 3360 AIR VOLUME	X 25mm 37mm AIR VOLUME	X 25mm 37mm AIR VOLUME
0.00785  FIELD AREA  BLANK CNT. AVG.	0.00785 C BLANK CNT. AVG.	0.00785 O BLANK CNT. AVG.	0.00785 O FIELD AREA BLANK CNT. AVG.
51 (60 FIBERS COUNTED FIELDS	98 (00 FIBERS COUNTED FIELDS	FIBERS COUNTED FIELDS	FIBERS COUNT FIELDS
- BLANK O	- BLANK O	- BLANK D	- BLANK <u>O</u>
51 (OO TOTAL FIBERS FIELDS	TOTAL FIBERS FIELDS	TOTAL FIBERS FIELDS	TOTAL FIBERS FIELDS
RESULTS:	RESULTS:	RESULTS:	RESULTS:
F/MM ==	F/MM =	F/MM =	F/MM =
F/CC = 0.006	F/CC = 0.014	F/CC =	F/CC =
COMMENTS:			
			<del> </del>
COUNTED BY: M. McKay	COUNTED BY: M. McKay	COUNTED BY: M. Mckay	COUNTED BY: M. MCKay
DATE COUNTED: 5/19/09	DATE COUNTED: 5/19/09	DATE COUNTED: 5/19/09	DATE COUNTED: 5/19/09

5/20/09 Date: Work Area Mileposts: MP 1313 - 1331 Sampled Person's Name: Tovar Jesus BNSF Employee ID 5054390 Job Title perator Machine Type 6000012 Pump Number T052009 Sample # Starting Flow Rate Sample Start Time Ending Flow Rate Sample End Time Sampled Person's Name: Rex Hanno 7516362 BNSF Employee ID Job Title Machine Type 6000012 Pump Number Sample # 052009 Starting Flow Rate Sample Start Time 07:17 Ending Flow Rate 2.3 15:36 Sample End Time BLUFF along tracks MP 1318 Sampled Person's Name: BNSF Employee ID Job Title Machine Type Pump Number Sample # RR 052009 Starting Flow Rate Sample Start Time 09:50 8.0 Ending Flow Rate 13:05 Sample End Time Bluff Base along tracks MP 1318 Sampled Person's Name: BNSF Employee ID Job Title Machine Type Pump Number Sample # -BB 05Z009 Starting Flow Rate Sample Start Time 09:51 Ending Flow Rate 8.0 13:06 Sample End Time

5/20/09 Work Area Mileposts: MP 1313 - 1331 Sampled Person's Name: David Castro BNSF Employee ID <u>7503923</u> Job Title Profiler Machine Type 000007 Pump Number Sample # DC 052009 Starting Flow Rate Sample Start Time 07:12 2.6 Ending Flow Rate 16:44 Sample End Time Sampled Person's Name: Keith Francis BNSF Employee ID 1178722 Job Title Profiler Machine Type 000007 Pump Number P. KF 052009 Sample # Starting Flow Rate 2.8 Sample Start Time 07:13 Ending Flow Rate 16:43 Sample End Time Sampled Person's Name: Leroy Paulson BNSF Employee ID 2514425 Job Title Derator Machine Type 5400457 Pump Number Sample # · LP 052009 Starting Flow Rate Sample Start Time 07:14 Ending Flow Rate 7.6 15:32 Sample End Time Sampled Person's Name: Duane Williams BNSF Employee ID 4882486 Job Title Profiler Machine Type 00000 Pump Number Sample # P0052009 Starting Flow Rate Sample Start Time Ending Flow Rate Sample End Time

Date: 5(20(09 Work Area Mileposts: MP (313-1331

Sampled Person's Name:	BLANK	Field	(noewed)	
BNSF Employee ID	10 6 65 17	1 1010	COPCARCES	 
Job Title				
Machine Type				 
Transmit Type				 
Pump Number				
Sample #	B-BK 05	2009		
Starting Flow Rate				
Sample Start Time				
_				 
Ending Flow Rate				
Sample End Time				
Sampled Person's Name:	_			
BNSF Employee ID				
Job Title				
Machine Type				 
Transmit Type				 
Pump Number				
Sample #				
Starting Flow Rate				
Sample Start Time				
Ending Flow Rate				
Sample End Time				
Sampled Person's Name				 
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BNSF Employee ID Job Title Machine Type  Pump Number Sample # Starting Flow Rate Sample Start Time  Ending Flow Rate Sample End Time  Sampled Person's Name BNSF Employee ID Job Title Machine Type  Pump Number Sample # Starting Flow Rate Sample Start Time				
BNSF Employee ID Job Title Machine Type  Pump Number Sample # Starting Flow Rate Sample Start Time  Ending Flow Rate Sample End Time  Sampled Person's Name BNSF Employee ID Job Title Machine Type  Pump Number Sample # Starting Flow Rate				

Date: 5   21   69   Work Area Mileposts:   1331 - 1336     Sampled Person's Name:   Rex. Hawna     BNSF Employee ID   75   6362     Oberater     Machine Type
BNSF Employee ID Job Title Machine Type  Pump Number Sample # Sample Sample Start Time  Ending Flow Rate Sample End Time  Sample Person's Name: BNSF Employee ID Job Title Machine Type  Ending Flow Rate Sample Start Time  2.8 Sample Person's Name: BNSF Employee ID Job Title Machine Type  Pump Number Sample # Starting Flow Rate Sample Start Time  2.8 Sample Start Time  2.8 Sample P. K.F. 052109  Ending Flow Rate Sample Person's Name: Document Starting Flow Rate Sample Flow Rate Sample Person's Name: Sample Person's Name: Document Starting Flow Rate Sample Person's Name: Sample Person's Name: Document Starting Flow Rate Sample Person's Name: Sample Person's Name: Document Starting Flow Rate Sample # Starting Flow Rate
Job Title Machine Type  OPERATOR  Machine Type  OPERATOR  Sample # Sample Start Time  OPERATOR  OPERATOR  OPERATOR  Sample Person's Name:  Keith Francis  Tion  Sample Person's Name:  Machine Type  OPERATOR
Machine Type
Sample # P.RH 052109  2.9  Sample Start Time 07:08  Ending Flow Rate
Sample # P.RH 052109  2.9  Sample Start Time 07:08  Ending Flow Rate
Starting Flow Rate   Sample Start Time   O7:08
Ending Flow Rate Sample End Time  7.09  Sampled Person's Name:  BNSF Employee ID Job Title Machine Type  900007  Pump Number Sample # Sample Start Time  7:09  Ending Flow Rate Sample Start Time  7:09  Ending Flow Rate Sample End Time  7:09  Sampled Person's Name:  BNSF Employee ID Job Title  Operator  Tool  Too
Ending Flow Rate Sample End Time  7.8    17.09
Sample End Time 17:09  Sampled Person's Name: Keth Francis BNSF Employee ID 1178722  Job Title Operator Machine Type 900007  Pump Number 2  Sample # P. KF 052109  Starting Flow Rate 2.9  Sample Start Time 07:09  Ending Flow Rate 2.8  Sample End Time 17:09  Sampled Person's Name: Jesus Toura BNSF Employee ID 5054390  Job Title Operator Machine Type 900007  Pump Number 3  Sample # P-TT 052109  Starting Flow Rate 2.9  Sample # P-TT 052109
Sample End Time 17:09  Sampled Person's Name: Keth Francis BNSF Employee ID 1178722  Job Title Operator Machine Type 900007  Pump Number 2  Sample # P. KF 052109  Starting Flow Rate 2.9  Sample Start Time 07:09  Ending Flow Rate 2.8  Sample End Time 17:09  Sampled Person's Name: Jesus Toura BNSF Employee ID 5054390  Job Title Operator Machine Type 900007  Pump Number 3  Sample # P-TT 052109  Starting Flow Rate 2.9  Sample # P-TT 052109
BNSF Employee ID Job Title Machine Type  Pump Number Sample # Starting Flow Rate Sample Start Time  Ending Flow Rate Sample End Time  Sampled Person's Name: BNSF Employee ID Job Title Machine Type  Pump Number Sample # Starting Flow Rate  Sample # Sample # Starting Flow Rate  Sample # Sample # Starting Flow Rate  Z.8  Z.8  Z.8  Z.8  Z.8  Z.8  Z.9  Z.8  Z.9  Z.9
BNSF Employee ID Job Title Machine Type  Pump Number Sample # Starting Flow Rate Sample End Time  Devator  Post of  Post of  Sampled Person's Name: BNSF Employee ID Job Title Machine Type  Pump Number Sample #
Job Title Machine Type  Pump Number  Sample # Starting Flow Rate Sample Start Time  Ending Flow Rate Sample End Time  Sampled Person's Name:  BNSF Employee ID Job Title Machine Type  Pump Number Sample # Starting Flow Rate  Sample # Starting Flow Rate  Z.8  IT:09  Sampled Person's Name:  Description  Total  T
Machine Type  Pump Number  Sample #  Starting Flow Rate  Sample Start Time  C7: 09  Ending Flow Rate  Sample End Time  Z.8  Sampled Person's Name:  BNSF Employee ID  Job Title  Machine Type  Pump Number  Sample #  Sample #  Sample #  Starting Flow Rate  Z.8  C7: 09  Sample Devasor  Pump Number  Sample #  Sample #  Starting Flow Rate  Z.9  Sample #  Starting Flow Rate
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Sample #   P   K   S   S   S   S   S   S   S   S   S
Starting Flow Rate         2.9           Sample Start Time         07:09           Ending Flow Rate         2.8           Sample End Time         17:09           Sampled Person's Name:         Jesus Toura           BNSF Employee ID         5054390           Job Title         Operator           Machine Type         9000007           Pump Number         3           Sample #         P- T T 052(09)           Starting Flow Rate         2.9
Ending Flow Rate Sample End Time  Z.8 Sample End Time  Z.8 Sampled Person's Name:  BNSF Employee ID Job Title Machine Type  Pump Number Sample # Sample # Starting Flow Rate  Z.8  Z.8  Z.8  Z.9  Z.8  Z.8  Z.9  Z.8  Z.9
Ending Flow Rate Sample End Time    7.09
Sample End Time 17:09  Sampled Person's Name: Jesus Toura  BNSF Employee ID 5054390  Job Title Operator  Machine Type 900007  Pump Number 3  Sample # P-JT 05209  Starting Flow Rate 2.9
Sample End Time 17:09  Sampled Person's Name: Jesus Toura  BNSF Employee ID 5054390  Job Title Operator  Machine Type 900007  Pump Number 3  Sample # P-JT 05209  Starting Flow Rate 2.9
Sampled Person's Name:   Jesus Toura
BNSF Employee ID Job Title Machine Type  Pump Number Sample # Starting Flow Rate  5054390  Coperator 900007  Fump Number 3 F- T 052(09)  7.9
Job Title         Operator           Machine Type         9000007           Pump Number         3           Sample #         P- T T 05 Z (09           Starting Flow Rate         2.9
Machine Type         900007           Pump Number         3           Sample #         P- T T 05 Z (09           Starting Flow Rate         2.9
Pump Number         3           Sample #         P- J T 05Z(09           Starting Flow Rate         2.9
Sample #   P - T T 05 Z ( 0 9
Sample #   P - T T 05 Z ( 0 9
Starting Flow Rate Z.9
Sample Start Time רס '. נס
Ending Flow Rate 2.8
Sample End Time 17:06
Sampled Person's Name: Levoy Paulson
BNSF Employee ID 2514925
Job Title Operator
Machine Type 900007
Pump Number 4
Sample # P. L. P. 052(09
Starting Flow Rate 2.5
Sample Start Time 07:12
Ending Flow Rate Sample End Time  2.3  (7:08

Date:	5(21/09	Work Area Mileposts:
Sampled	l Person's Name:	
	Employee ID	1) & ane Williams 4882486
Job Title	• •	Operator
Machine	Э Туре	9000000
Pump N		5
Sample :		P-DW 652169
	Flow Rate	2.5
Sample	Start Time	07:13
<u> </u>	~· ~	
	Flow Rate	2.3
	End Time	17:04
	d Person's Name:	
	Employee ID	7503923
Job Title		Operator
Machine	э Туре	900008
D N	r _1	1
Pump N Sample		D-100
	# Flow Rate	P.DC . 052109
	Start Time	07:16
Sample	Start Time	0(.)6
Ending 1	Flow Rate	2.5
	End Time	2.5 17:13
Complet	1 Darcania Name	B. V. E. I. ( Account)
Sample	d Person's Name:	Blank Field (Opened)
BNSF E	Employee ID	Blank Field (Opened)
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BNSF E	Employee ID e	Blank Field (Opened)
BNSF E Job Title Machine	Employee ID e e Type	Blank Field (Opened)
BNSF E	Employee ID e e Type Jumber	
BNSF E Job Title Machine Pump N Sample	Employee ID e e Type Jumber	BLank Freld (Opened) B-BK 052109
BNSF E Job Title Machine Pump N Sample Starting	Employee ID e e Type  Tumber #	
BNSF E Job Title Machine Pump N Sample Starting Sample	Employee ID e e Type  Jumber # s Flow Rate Start Time	
BNSF E Job Title Machine Pump N Sample Starting Sample Ending	Employee ID e e Type  Jumber # s Flow Rate Start Time  Flow Rate	
BNSF E Job Title Machine Pump N Sample Starting Sample Ending	Employee ID e e Type  Jumber # s Flow Rate Start Time	
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BNSF E Job Title Machine Pump N Sample Starting Sample Ending Sample	Employee ID e e Type  Jumber # s Flow Rate Start Time  Flow Rate End Time  d Person's Name:	B-BK 052109
BNSF E Job Title Machine Pump N Sample Starting Sample Ending Sample	Employee ID e e Type  Jumber # Flow Rate Start Time  Flow Rate End Time  d Person's Name:	B-BK 052109
Pump N Sample Starting Sample Ending Sample Sample	Employee ID e e Type  Number # s Flow Rate Start Time  Flow Rate End Time  d Person's Name: Employee ID e	B-BK 052109
Pump N Sample Starting Sample Ending Sample Sample Sample Sample Job Title	Employee ID e e Type  Number # s Flow Rate Start Time  Flow Rate End Time  d Person's Name: Employee ID e	B-BK 052109
Pump N Sample Starting Sample Ending Sample Sample Dob Title Machine	Employee ID e e Type  Jumber # s Flow Rate Start Time  Flow Rate End Time  d Person's Name: Employee ID e e Type  Jumber	B-BK 052109
Pump N Sample Sample Ending Sample Sample Fump N Sample Company Sample	Employee ID e e Type  Number # s Flow Rate Start Time  Flow Rate End Time  d Person's Name: Employee ID e e Type  Number #	B-BK 052109
BNSF E Job Title Machine Pump N Sample Starting Sample Ending Sample Ending Sample Fump N Sample Pump N Sample Starting	Employee ID e e Type  Number # g Flow Rate Start Time  Flow Rate End Time  d Person's Name: Employee ID e e Type  Number # g Flow Rate	B-BK 052109
BNSF E Job Title Machine Pump N Sample Starting Sample Ending Sample Ending Sample Fump N Sample Pump N Sample Starting	Employee ID e e Type  Number # s Flow Rate Start Time  Flow Rate End Time  d Person's Name: Employee ID e e Type  Number #	B-BK 052109
BNSF E Job Title Machine Pump N Sample Starting Sample Ending Sample Sample BNSF E Job Title Machine Pump N Sample Starting Sample	Employee ID e e Type  Jumber # g Flow Rate Start Time  Flow Rate End Time  d Person's Name: Employee ID e e Type  Jumber # g Flow Rate Start Time	B-BK 052109
BNSF E Job Title Machine Pump N Sample Starting Sample Ending Sample BNSF E Job Title Machine Pump N Sample Starting Sample Ending	Employee ID e e Type  Number # g Flow Rate Start Time  Flow Rate End Time  d Person's Name: Employee ID e e Type  Number # g Flow Rate	B-BK 052109

Date: 5 | 22 | 09 Work Area Mileposts: MP 1336 - 1341 Sampled Person's Name: Jesus Toyar BNSF Employee ID <u> 505439</u> Job Title Operator Machine Type 0900007 Pump Number Sample # 052209 PJT Starting Flow Rate Sample Start Time 80:70 Ending Flow Rate Sample End Time 0:47 Sampled Person's Name: Dayle Castro BNSF Employee ID 7503923 Job Title perator Machine Type **9**00008 Pump Number Sample # DC. 052209 Starting Flow Rate Sample Start Time 7:69 Ending Flow Rate Sample End Time Sampled Person's Name: Rex Hanna BNSF Employee ID 516362 Job Title perator Machine Type Pump Number Sample # RH 052209 Starting Flow Rate Sample Start Time 07:10 Ending Flow Rate 10:45 Sample End Time Sampled Person's Name: Duane William 5 BNSF Employee ID 4882486 Job Title Machine Type Pump Number Sample # 052209 Starting Flow Rate Sample Start Time Ending Flow Rate Sample End Time

5/22/09 Work Area Mileposts: MP 1336-Date: Sampled Person's Name: Kerth Francis BNSF Employee ID 178722 Job Title perator Machine Type Pump Number 052209 Sample # Starting Flow Rate Sample Start Time 07:1 Ending Flow Rate Sample End Time Sampled Person's Name: Leroy Paulson BNSF Employee ID 2514925 Job Title Operator Machine Type 04000008 Pump Number LP-052209 Sample # Starting Flow Rate 07:12 Sample Start Time Ending Flow Rate Sample End Time Sampled Person's Name: BNSF Employee ID Job Title Machine Type Pump Number B-BK 052209 Sample # Starting Flow Rate Sample Start Time Ending Flow Rate Sample End Time Sampled Person's Name: BNSF Employee ID Job Title Machine Type Pump Number Sample # Starting Flow Rate Sample Start Time Ending Flow Rate Sample End Time

## ATTACHMENT C

EMSL LABORATORY REPORTS AND CHAIN OF CUSTODY FORMS



### EMSL Analytical, Inc.

107 West 4th Street, Libby. MT 59923

Phone: (406) 293-9066

Fax:

Email: mobileasbestostab@emsl.com

Attn: Scott Carney

EMR, Inc.

11 East Superior Street

Samples collected 5/19/2009

Suite 260

**Duluth, MN 55802** 

Customer ID:

EMRI78

Customer PO: Received:

05/20/09 8:45 AM

EMSL Order:

270900123

Fax: Project: (218) 625-2337

Phone: (218) 625-2332

EMSL Proj:

BNSF 2009 OSHA

Analysis Date:

5/27/2009

Sampling Date:

5/19/2009

### Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) Performed by AHERA -EPA 40 CFR Part 763 Appendix A to Subpart E (Modified for Indirect Prep)

		Volume	Area Analyzed	Non	Asbestos	# Structures	Analytical Sensitivity	Total A: Concent	
Sample	Location	(Liters)	(mm²)	Asb		$\geq 0.5\mu < 5\mu \geq 5$	iμ (S/cc)	(S/mm²)	(S/cc)
01 270900123-0001		1584.00	0.1300		None Dete	ected	0.0070	<29.00	<0.0070
02 270900123-0002		1590.00	0.1300		None Dete	ected	0.0070	<29.00	<0.0070
03 270900123-0003		1584.00	0.1300		None Dete	ected	0.0070	<29.00	<0.0070
04 270900123-0004	and the second s	1382.00	0.1300		None Dete	ected	0.2000	<720.00	<0.2000
05 <i>270900123-0005</i>		1373.00	0.1300		None Det	ected	0.0810	<290.00	<0.0810
06 270900123-0006		1300.00	0.1300		None Det	ected	0.0210	<72.00	<0.0210

Revised Report. Corrected concentrations for sample 06.

Analyst(s)

Roy Pescador (6)

R. K. Mahoney, Laboratory Manager or other approved signatory

This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. EMSL is not responsible for data reported in structures/cc, which is dependent on wolume collected by non-laboratory personnel. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted. Accredited for NVLAP PLM/TEM. NVLAP Libby code: 200745-0

### **INTERNAL CHAIN OF CUSTODY**

5/20/2009 11:05:52 AM

Order ID: 270900124

Attn:

Scott Carney

EMR, Inc.

11 East Superior Street Suite 260

Duluth, MN 55802

Fax:

(218) 625-2337

Phone: (218) 625-2332

Project: Samples collected 5/19/2009

**Customer ID** 

**Customer PO:** 

Received:

EMRI78

05/20/09 8:45 PM

EMSL Order:

270900124

EMSL Proj ID:

BNSF 2009 OSHA

**Cust COC ID** 

Test: TEM AHERA	<u>Ma</u>	<u>ıtrix</u> Air	TAT: 24 Hour	<u>Qty:</u> 4
Acct Sts:	Sisprsn:	epodell	Logged: rmahoney  Sample	<b>Date:</b> 5/20/2009
Samples Relinquis Samples Received:		Date	Comments	
Package Mailed to Westmont: Date  Method of Delivery: Includes: (Circle)		Initial Prep (Initials/Lab): รัฐเมริ Filter Prep (Initials/Lab): รัฐเมริ	Date: 5/20/09	
Benchsheets S	Sample Slides GridBox	Sample filters Other	Grid Prep (Initials/Lab): とすい For Special Projects Use Only:	Date: \$\frac{1\tanboloq}{\text{ol}}\text{oq}
Final Package Receiv	ed:	Date:	QC Selection: Date Package Review: Date Package Mailed:	Date: Date:

**Special Instructions** 

			, ,	
Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900124	270900124-0001	01A		5/21/2009 8:45:00 PM
270900124	270900124-0002	02A		5/21/2009 8:45:00 PM
270900124	270900124-0003	03A		5/21/2009 8:45:00 PM
270900124	270900124-0004	04A		5/21/2009 8:45:00 PM

2709-EMR-ARC-50, (A) 2709-EMR-49, (A+B)

5/20/2009 11:05:59 AM

Order ID: 270900124

Attn:

Fax:

Project:

Scott Carney

EMR, Inc.

11 East Superior Street

Suite 260

Duluth, MN 55802

(218) 625-2337

Phone: (218) 625-2332

Samples collected 5/19/2009

Customer ID:

Customer PO:

Received:

EMRI78

05/20/09 8:45 PM

BNSF 2009 OSHA

EMSL Order:

270900124

EMSL Proj ID: **Cust COC ID** 

Test: TEM AHERA		<u>Matrix:</u> Air	f	TAT: 24 Hour	<u>Qty:</u> 4
Order ID	Lab Sample #	Cust. Sample #	Location		Due Date
270900124	270900124-0001	01A			5/21/2009 8:45:00 PM

Comments:	
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ANALYZED:	RKM	Date:	5/20/09
Preliminary Data Sent to Special Projects:	RICE	Date:	5/20/09
Data Entry:	-	Date:	
Structore Revisor:		Date:	
Oata Validation:		Cate:	
Reported to Client:		Date:	

	Micropraph Number	Type Orffraction or Morphology
		200
-		

5/20/2009 11:06:00 AM

Order ID: 270900124

Attn:

Fax:

Project:

Scott Carney

EMR, Inc.

11 East Superior Street

Suite 260

Duluth, MN 55802

(218) 625-2337

Phone: (218) 625-2332

Samples collected 5/19/2009

Received:

EMSL Order:

Customer ID:

Customer PO:

270900124

EMRI78

EMSL Proj ID:

BNSF 2009 OSHA

05/20/09 8:45 PM

**Cust COC ID** 

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900124	270900124-0002	02A		5/21/2009 8:45:00 PM
Comments:				

ANALYZED:	RKM	Date:	5/20/09
Preliminary Data Sent to Special Projects:	RKM	Date:	5/20/09
Data Entry:	•	Date:	- ( ( )
Structure Review:		Date:	
Data Valiidation:		Date:	
Reported to Client:		Daie:	,

Miorogreph Number	Type Offrection or Morphology
· · · · · · · · · · · · · · · · · · ·	

5/20/2009 11:06:00 AM

Order ID: 270900124

Attn:

Fax:

Scott Carney

EMR, Inc.

11 East Superior Street

Suite 260

Duluth, MN 55802

(218) 625-2337

Phone: (218) 625-2332 Project: Samples collected 5/19/2009

EMSL Order:

EMSL Proj ID:

Customer ID:

Customer PO:

Received:

270900124

EMRI78

BNSF 2009 OSHA

05/20/09 8:45 PM

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900124	270900124-0003	03A		5/21/2009 8:45:00 PM

Comments:
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ANALYZED:	RKm	Date:	5/20/09
Preliminary Data Sent	A 4:	Date:	,
to Special Projects:	<u> </u>		5/20/09
Data Entry:		Date:	
Sinucture Review:		Date:	
Data Validation:		Date:	
Reported to Chent:		Date:	

Micrograph Number	Type Orfraction or Morphology
	Section to the section of the period to the gap

5/20/2009 11:06:00 AM

Order ID: 270900124

Attn:

Fax:

Project:

Scott Carney

EMR, Inc.

11 East Superior Street

Samples collected 5/19/2009

Suite 260

Duluth, MN 55802

(218) 625-2337

Phone: (218) 625-2332

Customer ID: Customer PO:

Received:

EMRI78

05/20/09 8:45 PM

EMSL Order: EMSL Proj ID: 270900124 BNSF 2009 OSHA

**Cust COC ID** 

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900124	270900124-0004	04A		5/21/2009 8:45:00 PM

Comments:		
:		

ANALYZED:	REM	Date:	5/20/09		
Preliminary Data Sent to Special Projects:	2.6	Date:	5/20/09		
Date Entry:	Rkm	Date:	<i>3 / 40/64</i>		
Structure Review:		Date:			
Data Valiidation:		Date:			
Reported to Olient:		Daie:			

Micrograph Number	Type Criffrection or Morphology
- A-1200-	



# Asbestos Chain of Custody EMSL Order Number (Lab Use Only):

EMSL ANALYTICAL, INC. 107 HADDON AVENUE WESTMONT, NJ 08108

PHONE: (856) 858-4800 Fax: (856) 858-4960

270900124

Company: EMR			EMSL-Bill to: Same Different If Bill to is Different note instructions in Comments**							
Street: [  Eas	et: 11 East Superior St Suite 260			Third Party Billing requires written authorization from third party						
City: Dulutu			rovince: MN					ntry: USA		
Report To (Name): Scot Carney			Fax #:							
Telephone #: していと				Email Address:						
Project Name/Numbe				Email Address						
Please Provide Resu		Email	Purchase Order	**	U.S	S. State Sa	mples Take	en:		
			around Time (TAT)	Options* – Pleas						
		24 Hrs	☐ 48 Hrs	☐ 3 Days	<u> </u>	Days	☐ 5 Days	☐ 10 Days		
*For TEM Air 3 hours/6 he an authorization fo	ours, please call ah orm for this service.	ead to sche Analysis o	edule.*There is a premiui completed in accordance	m charge for 3 Hour a with EMSL's Terms	TEM AHE and Con	ERA or EPA : ditions locate	Level II TAT. `` ed in the Analy	You will be asked to sign tical Price Guide.		
PCM - Air		1	TEM - Air		4,10	TEM- Du				
☐ NIOSH 7400			AHERA 40 CFF	R, Part 763			— vac - ASTM	D 5755		
w/ OSHA 8hr. TW/	4		■ NIOSH 7402	•		Wipe	- ASTM D64	80		
PLM - Bulk (reporting	limit)		☐ EPA Level II					(EPA 600/J-93/167)		
☐ PLM EPA 600/R-93	3/116 (<1%)		☐ ISO 10312				k/Vermiculi			
☐ PLM EPA NOB (<1	%)	Ī	TEM - Bulk					A (0.25% sensitivity)		
Point Count			☐ TEM EPA NOB		'	☐ PLM (	CARB 435 -	B (0.1% sensitivity)		
□ 400 (<0.25%) □ 10	000 (<0.1%)		☐ NYS NOB 198.4	(non-friable-NY)		☐ TEM	CARB 435 -	B (0.1% sensitivity)		
Point Count w/Gravime	etric		☐ Chatfield SOP			☐ TEM CARB 435 - C (0.01% sensitivity)				
☐ 400 (<0.25%) ☐ 10	000 (<0.1%)		☐ TEM Mass Anal	ysis-EPA 600 sec	2.5	☐ EPA Protocol (Semi-Quantitative)				
☐ NYS 198.1 (friable	in NY)		TEM - Water: EPA	100.2		☐ EPA Protocol (Quantitative)				
☐ NYS 198.6 NOB (r	on-friable-NY)		Fibers >10µm	Waste Drinking Other:						
☐ NIOSH 9002 (<1%	)		All Fiber Sizes	Waste ☐ Drinking ☐						
	☐ Chec	k For Po	ositive Stop – Cle	arly Identify Ho	omoge	nous Gr	oup			
Samplers Name:				Samplers Sign	ature:					
						Volume	Area (Air)	Date/Time		
Sample #			Sample Description			HA#	(Bulk)	Sampled		
OIA	Area P	Sacke	ground MF	. 1307		421	6	5119109		
OZA	Area Mobil Pump Sample MP 1313					336	0	5119109		
03A										
04A	A Lab Blank									
	Star Lato Brank									
		· · · · · · · · · · · · · · · · · · ·					ρ			
							EN			
Client Sample # (s):	01A - 0	44	-			Total # of	Samples:	4		
Relinquished (Client)	=		Val. Data: 1	5/20/09			Time	:08:45		
Received (Lab):	•		•							
Comments/Special In	K./L M. a	non	Date:	5/20/09			1 Ime	: 0845		
- Camillandropoolal III								~		
			· · · · · · · · · · · · · · · · · · ·		·					

Date: 5/19/09 Work Area Mileposts: 1307-1313 270900144 Sampled Person's Name: Area Background Sample MP 1307 BNSF Employee ID Job Title Machine Type Pump Number Sample # Starting Flow Rate Sample Start Time 07:44 Ending Flow Rate <u>8.0</u> Sample End Time 16:00 Area Mobil Pump Sample MP 1307 - 1313 Sampled Person's Name: BNSF Employee ID Job Title Machine Type Pump Number 10 Sample # OZA Starting Flow Rate Sample Start Time 08:13 <u>8</u> 15:13 **Ending Flow Rate** Sample End Time Sampled Person's Name: BNSF Employee ID Job Title Machine Type Pump Number Sample # Starting Flow Rate Sample Start Time **Ending Flow Rate** Sample End Time Sampled Person's Name: BNSF Employee ID Job Title Machine Type Pump Number Sample # Starting Flow Rate Sample Start Time Ending Flow Rate Sample End Time



### EMSL Analytical, Inc.

107 West 4th Street, Libby, MT 59923

Phone: (406) 293-9066 Fax:

Email: mobileasbestoslab@emsl.com

Attn: Scott Carney

EMR, Inc.

11 East Superior Street

Suite 260

**Duluth, MN 55802** 

Project: Samples collected 5/19/2009

Customer ID: Customer PO: EMRI78

Received:

05/20/09 8:45 PM

EMSL Order:

270900124

Fax:

(218) 625-2337

Phone: (218) 625-2332

EMSL Proj:

BNSF 2009 OSHA

Analysis Date:

5/20/2009

Sampling Date:

5/19/2009

### Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) Performed by EPA 40 CFR Part 763 Appendix A to Subpart E

Sample	Location	Volume (Liters)	Area Analyzed (mm²)	Non Asb	Asbestos Type(s)	# Structures ≥ 0.5µ < 5µ ≥5µ	Analytical Sensitivity (S/cc)	Asbe Concen (S/mm²)	
01A 270900124-0001		4216.00	0.0520		None Dete	ected	0.0018	<19.00	<0.0018
02A 270900124-0002		3360.00	0.0520		None Dete	ected	0.0022	<19.00	<0.0022
03A 270900124-0003 Field Blank			0.1300		None Dete	ected		<7.70	
04A 270900124-0004 Lab Blank			0.1300		None Dete	ected		<7.70	

Analyst(s)

Ron Mahoney (4)

R. K. Mahoney, Laboratory Manager or other approved signatory

Disclaimers: The laboratory is not responsible for data reported in structures/cc, which is dependent on volume collected by non-laboratory personnel. This lab is only responsible for data reported in structures/mm². This report may not be reproduced, except in full, without written approval by EMSL. This report must not be used to claim product endorsement by NVLAP or any agency of the U.S. Government. This report relates only to the samples reported above. Quality control data (including 95% confidence limits and laboratory and analysts' accuracy and precision) is available upon request. As per 40 CFR 763, the initial screening test may not be applied to samples with collected volumes of <1200 liters. The test results contained within this report meet the requirements of NELAC unless otherwise noted. Samples received in good condition unless otherwise noted. Accredited for NVLAP PLM/TEM. NVLAP Libby code: 200745-0

Laboratory name:	EMSL27
Instrument	JEOL 1200 EX II (27-3)
Voltage (KV)	100
Magnification	20,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	OIA
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	4216
Date received by lab	5/20/2009
Lab Job Number:	270900124
Lab Sample Number:	270900124-000
Number of grids prepared	3
Prepared by	E.J. Wyatt-Pescador
Preparation date	5/20/2009
EPA COC Number:	5/20/2009
Secondary filter pore size (um)	0.2

Analyzed by	R. Mahoney
Analysis date	5/20/2009
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	AHERA
Grid storage location	2709-EMR-49, A
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right---->

Recording Rules:			
Minimum Aspect Ratio (circle one):			
none	≥ 3:1	≥ 5:1	
Minimum Length (u	ım):	0.5	
Minimum Width (ur	n):	None	
	_		

Stopping Rules:	
Target Sensitivity:	0.0050
Max # of GOs:	4
Target # of Structures:	

Grid	Grid Opening	Structure	No. of St	ructures	Dime	nsions	Identification	Mir	neral Class	(see belo	w)	Sketch/ Comments	1 = ye	es, blank	= no	Fract.
Olid Oli	Ond Opening	Туре	Primary	Total	Length	Width	Identification	LA	OA	С	NAM	Sketch/ Comments	Sketch	Photo	EDS	GO Chrys.
1	C5															
•	<b>C</b> 7															
2	D5															
	07															
							RI	m								

F-factor Calculation:

direct Prep Inputs Fraction of primary filter used for indirect prep or ashing

[For dust and dustfall, enter 1.0] First resuspension volume or rinsate volume (mL)

> Volume applied to secondary filter (mL) or used for serial dilution

puts for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one): H Horizontal



Are prepped grids acceptable for analysis? (circle one If No, explain:



Laboratory name:	EMSL27
Instrument	JEOL 1200 EX II (27-3)
Voltage (KV)	100
Magnification	20,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

Structure

Type

NO

שע

No. of Structures

Total

Primary

02A
A
3360
5/20/2009
270900124
270900124-000 2
3
E.J. Wyatt-Pescador
5/20/2009
5/20/2009
0.2

Identification

LA

Kry 3/20/09

R. Mahoney
5/20/2009
D
No
AHERA
2709-EMR-49, A
Westmont
Not QA

F-Factor Calculation (Indirect Preps Only):

Sketch/ Comments

Enter data in appropriate cells provided to the right---->

Sketch

Recording Rules:			
Minimum Aspect Ratio (circle one):			
none	≥ 3:1	≥ 5:1	
Minimum Lengt	th (um):	0.5	
Minimum Width	um):	None	
	_		

Stopping Rules:	
Target Sensitivity:	0.0050
Max # of GOs:	4
Target # of Structures:	

#### F-factor Calculation:

Fract.

GO

Chrys.

Indirect	Dren	Innu
manect	LIED	HIDU

maneet rep inputs		
	Fraction of primary filter used for indirect prep or ashing	
	[For dust and dustfall, enter 1.0]	
	First resuspension volume or rinsate volume (mL)	
	Volume applied to secondary filter (mL) or used for serial dilution	

#### Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for senal dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter
Fraction of secondary filter used for ashing

LA = Libby-type amphibole

Grid

Grid Opening

<u>н6</u> н8

OA = Other (non-Libby type) amphibole

Dimensions

Length

Width

C = Chrysotile

Mineral Class (see below)

OA

C

NAM

NAM = Non-asbestos material

1 = yes, blank = no

Photo

EDS

Grid opening traverse direction (circle one):

H Horizontal

Vertical

Are prepped grids acceptable for analysis?	(circle one)
File avalais:	•



No

Laboratory name:	EMSL27
Instrument	JEOL 1200 EX II (27-3)
Voltage (KV)	100
Magnification	20,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Blank
Primary filter pore size (um)	0.8

Structure

Type

ND

No. of Structures

Total

Primary

03 A
A
æ
5/20/2009
270900124
270900124-0003
3
E.J. Wyatt-Pescador
5/20/2009
5/20/2009
0.2

Identification

Analyzed by	R. Mahoney
Analysis date	5/20/2009
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	AHERA
Grid storage location	2709-EMR-49, A
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Sketch/ Comments

Enter data in appropriate cells provided to the right---->

Sketch

Recording Rules:		
Minimum Aspect Ratio (circle one):		
none	≥ 3:1	<b>5</b> :1
Minimum Leng	th (um):	0.5
Minimum Width (um):		None
1		

Stopping Rules:	
Target Sensitivity:	
Max # of GOs:	10
Target # of Structures:	

F-factor Calculation:

Fract.

GO

Chrys.

EDS

Indirect Prep Inputs
Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

LA = Libby-type amphibole

Grid

Grid Opening

OA = Other (non-Libby type) amphibole

Dimensions

Length

Width

C = Chrysotile

Mineral Class (see below)

Ç

NAM

OA

LA

NAM = Non-asbestos material

1 = yes, blank = no

Photo

Grid opening traverse direction (circle one):
H Horizontal



Are prepped grids acceptable for analysis? (circle one)



) No

Laboratory name:	EMSL27
Instrument	JEOL 1200 EX II (27-3)
Voltage (KV)	100
Magnification	20,000 X
Grid opening area (mm2)	0.0/3
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Blank
Primary filter pore size (um)	0.8

Structure

Type

ND

NA

ND

ND

ND

N

ND

Grid Opening

Bro

B4

BZ

Grid

2

No. of Structures

Total

Primary

EPA Sample Number:	OYA
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	æ
Date received by lab	5/20/2009
Lab Job Number:	270900124
Lab Sample Number:	270900124-000
Number of grids prepared	3
Prepared by	E.J. Wyatt-Pescador
Preparation date	5/20/2009
EPA COC Number:	5/20/2009
Secondary filter pore size (um)	0.2

Identification

LA

Analyzed by	R. Mahoney
Analysis date	5/20/2009
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	AHERA
Grid storage location	2709-EMR-49, B
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Sketch/ Comments

Enter data in appropriate cells provided to the right---->

Recording Rul	<u>es:</u>	
Minimum Aspe	ect Ratio (circ	le one):
none	≥ 3:1	≥ 5:1
Minimum Leng	gth (um):	0.5
Minimum Widt	h (um):	None

Stopping Rules:	
Target Sensitivity:	
Max # of GOs:	10
Target # of Structures:	

F-factor Calculation:

Fract.

GO

Chrys.

Indirect Prep Inputs
Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

Dimensions

Length

Width

C = Chrysotile

Mineral Class (see below)

OA

С

NAM

NAM = Non-asbestos material

1 = yes, blank = no

Photo

EDS

Sketch

Grid opening traverse direction (circle one):

H Horizontal

Vertical

Are prepped grids acceptable for analysis?	(circle one)
If No explain:	•



# ZB

#### BNSF 2009 OSHA TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 1200 EX II (27-3)
Voltage (KV)	100
Magnification	20,000 X
Grid opening area (mm2)	
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	
Secondary Filter Area (mm2)	
Category (Field, Rep., Dup., Blank)	Blank
Primary filter pore size (um)	0.8

Structure

Type

ND (NN

ND

ND

ND

ND

ND

Grid Opening

410

Grid

2

No. of Structures

Total

Primary

,	
EPA Sample Number:	
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	0
Date received by lab	
Lab Job Number:	270900124
Lab Sample Number:	270900124-000
Number of grids prepared	2
Prepared by	E.J. Wyatt-Pescador
Preparation date	5/20/2009
EPA COC Number:	5/20/2009
Secondary filter pore size (um)	0.2

Identification

LA

R. Mahoney
5/20/2009
D
No
AHERA
2709-EMR-49, B
Westmont
Lab Blank

F-Factor Calculation (Indirect Preps Only):

Sketch/ Comments

Enter data in appropriate cells provided to the right---->

Sketch

Recording Rules:	
Minimum Aspect Ratio (ci	rcle one):
none ≥ 3:1	≥ 5:1
Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:	
Target Sensitivity:	
Max # of GOs:	10
Target # of Structures:	

#### F-factor Calculation:

Fract.

GO

Chrys.

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
First resuspension volume or rinsate volume (mL)
Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for senal dilution

Third resuspension volume (mL)

Volume applied to secondary filter

Input for Ashing of Secondary Filter
Fraction of secondary filter used for ashing

H 4
H 2
LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

Dimensions

Width

Length

C = Chrysotile

Mineral Class (see below)

С

NAM

OΑ

NAM = Non-asbestos material

1 = yes, blank = no

Photo

ED\$

Grid opening traverse direction (circle one):

H Horizontal

Vertical

re p	repped grids	acceptable	for analysis?	(circle one)
No	evolain:			



No

If No, explain:

### INTERNAL CHAIN OF CUSTODY

5/29/2009 11:41:21 AM

Order ID: 270900129

Phone: (218) 625-2332

Attn:

Fax:

Project:

Special Instructions

Scott Carney

EMR, Inc.

11 East Superior Street

Suite 260

Duluth, MN 55802

(218) 625-2337

5539 052009-01

Samples collected 5/20/2009

Customer ID

Customer PO:

Received:

EMRI78

05/21/09 10:30 AM

270900129

EMSL Order: EMSL Proj ID:

BNSF 2009 OSHA

Cust COC ID

Test: TEM AH	ERA <u>M</u>	latrix Air	<u>TAT:</u> 24 Hour <u>C</u>	<u>lty:</u> 5
Acct Sts:  Inter- Lab Sample  Samples Relin	<del></del>	epodell	Logged: rmahoney Date  Sample	<u>e:</u> 5/21/2009
Samples Received Package Maile Method of Deli	d to Westmont:	Date	Initial Prep (Initials/Lab): PAY	Dan the
Includes: (Circ Benchsheets Micrographs	<b>-</b>	Sample filters Other	For Seer of Projects Use Gridy	Date: 5/25/09  Date: 5/25/09  Date: 5/25/09
Final Package Re	eceived:	Date:	QC Selection: Date Fackage Review:	Date:

Date Package Mailed:

Order ID	Lab Sample #	Cust. Sample #	ocation	Due Date
270900129	270900129-0001	P-DC 052009		5/22/2009 10:30:00 AM
270900129	270900129-0005	P-JT 052009		5/22/2009 10:30:00 AM
270900129	270900129-0007	A-RB 052009(RD) - EUWP		5/22/2009 10:30:00 AM
270900129	270900129-0008	A-BB 052009		5/22/2009 10:30:00 AM
270900129	270900129-0009	B-BK 052009		5/22/2009 10:30:00 AM

2D 2709-EMB-49(H-L) 2709-EMR-ARC-50 (D-E) Date:

### INTERNAL CHAIN OF CUSTODY

5/29/2009 11:41:21 AM

Order ID: 270900129

Attn:

Fax:

Project:

**Scott Carney** 

EMR, Inc.

11 East Superior Street

Suite 260

Duluth, MN 55802

(218) 625-2337

5539 052009-01 Samples collected 5/20/2009

Phone: (218) 625-2332

EMSL Order:

Received:

**Customer ID** 

Customer PO:

EMSL Proj ID:

270900129

EMRI78

<u>Date Package Mailed:</u>

BNSF 2009 OSHA

05/21/09 10:30 AM

**Cust COC ID** 

Test: TEM AHI	ERA (Indirect) <u>M</u>	latrix Air	TAT: 24 Hour Qt	<u>v:</u> 4
Acct Sts:	Slsprsn:	epodell	Logged: rmahoney Date:	5/21/2009
Inter- Lab Sample	<u>ransfer</u>		Sample	
Samples Reline	quished:	Date	Comments	
Samples Recei	ved:	Date		
Package Maile	d to Westmont:	Date	-	
Method of Deli			Initial Prep (Initials/Lab): pwy	Date: 5/26/09
Includes: (Circ	le)		Filter Prep (Initials/Lab): pry	Date: 5/28/09
Benchsheets Micrographs	Sample Slides GridBox	Sample filters Other	Grid Prep (Initials/Lab):	Date: 1/29/8
	— — — — — — — — — — — — — — — — — — —	Other	For Special Projects Use Only:	
Final Package Received: Date:		QC Selection:	Date:	
			Date Package Review:	Date:

**Special Instructions** 

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900129	270900129-0002	P-KF 052009 10, 157	E) so (first dil) - Ashed	5/20/2009
270900129	270900129-0003	P-LP 052009 10, 15,	25, (FOX 1st dil) - Ashed	5/20/2009
270900129	270900129-0004	P-DW 052009 10,(13	25,50 (2nd dil) - Ashed	5/20/2009
270900129		P-RH 052009 10, 15,		5/20/2009

2719- EMR-49(H-L)

2709-WE EMR-ARC - 50 (D-E)

Date:

5/29/2009 11:43:16 AM

<b>Qty:</b> 5
Qty: 5
<u>Qty:</u> 5
10:30:00
5/29/09
6/1/09
s-/2

5/29/2009 11:43:17 AM

Order ID: 270900129

Phone: (218) 625-2332

Attn:

Fax:

Project:

Scott Carney

EMR, Inc.

11 East Superior Street

Suite 260

Duluth, MN 55802

(218) 625-2337

5539 052009-01

Samples collected 5/20/2009

Customer ID:

Customer PO:

Received:

EMRI78

05/21/09 10:30 AM

BNSF 2009 OSHA

EMSL Order:

270900129

EMSL Proj ID: Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900129	270900129-0005	P-JT 052009		5/22/2009 10:30:00 AM

Comments:	 	

ANALYZED:	proj	Date:	5/29/29
Preliminary Data Sent to Special Projects:	Klam	Date:	6/1/09
Data Entry:		Date:	-1.70
Structure Review:		Date:	
Data Validation:		Date:	
Reported to Client:		Date:	

Micrograph Number	Type Diffraction or Morehology

5/29/2009 11:43:17 AM

Order ID: 270900129

Attn:

Fax:

Project:

Scott Carney

EMR, Inc.

11 East Superior Street

Suite 260

Duluth, MN 55802

(218) 625-2337

5539 052009-01

Samples collected 5/20/2009

Phone: (218) 625-2332

Customer ID:

Customer PO:

Received:

05/21/09 10:30 AM

EMSL Order:

270900129

EMRI78

BNSF 2009 OSHA

EMSL Proj ID: Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900129	270900129-0007	A-RB 052009		5/22/2009 10:30:00 AM

Comments:	 <del></del>	 

ANALYZED:	m	Date:	5/29/09
Preliminary Data Sent to Special Projects:	Rkm	Date:	6/1/09
Data Entry:		Date:	-71104
Sinicture Review:		Date:	
Data Valildation:		Date:	
Reported to Client:		Date:	

Micrograph Number	Type
	Diffraction of Monthology
	Micrograph Number

5/29/2009 11:43:17 AM

Order ID: 270900129

Phone: (218) 625-2332

Attn:

Fax:

Project:

Scott Carney EMR, Inc.

11 East Superior Street

Suite 260

Duluth, MN 55802

(218) 625-2337

5539 052009-01

Samples collected 5/20/2009

Customer ID:

Customer PO:

Received:

05/21/09 10:30 AM

EMSL Order:

270900129

EMRI78

EMSL Proj ID:

BNSF 2009 OSHA

**Cust COC ID** 

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900129	270900129-0008	A-BB 052009		5/22/2009 10:30:00 AM

	 	···········	 
Comments:			
Comments.			
1			

ANALYZED:	prof	Date:	straton
Preliminary Data Sent to Special Projects:	R/cm	Date:	6/1/09
Data Entry:		Date:	4///04
Structure Review:		Date:	
Data Validation:		Date:	
Reported to Olient:		Date:	

Micrograph Number	LAba
	Diffraction of Monthology

5/29/2009 11:43:17 AM

Order ID: 270900129

Phone: (218) 625-2332

Attn:

Fax:

Project:

Scott Carney

EMR, Inc.

11 East Superior Street

Suite 260

Duluth, MN 55802

(218) 625-2337

5539 052009-01

Samples collected 5/20/2009

Customer ID:

Customer PO:

Received:

EMRI78

05/21/09 10:30 AM

EMSL Order:

EMSL Proj ID:

270900129

BNSF 2009 OSHA

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900129	270900129-0009	B-BK 052009		5/22/2009 10:30:00

Comments:	 

ANALYZED:	lus	Date:	M29/09
Preliminary Data Sent to Special Projects:	RKM	Date:	6/1/09
Data Entry:		Date:	
Sinucture Review:		Date:	
Data Validation:		Date:	
Reported to Client:		Date:	

Micrographs:

	Micrograph Number	Type Diffraction or Morehology
<del></del>		

**Test:** TEM AHERA (Indirect)

Matrix: Air

TAT: 24 Hour

**Qty:** 4

5/29/2009 11:43:17 AM

Order ID: 270900129

Attn:

Fax:

Project:

Scott Carney

EMR, Inc.

11 East Superior Street

Suite 260

Duluth, MN 55802

(218) 625-2337

5539 052009-01

Samples collected 5/20/2009

Phone: (218) 625-2332

Customer ID:

Customer PO:

Received:

EMRI78

05/21/09 10:30 AM

EMSL Order: EMSL Proj ID: 270900129 BNSF 2009 OSHA

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900129	270900129-0002	P-KF 052009		5/20/2009

Comments:	 	

ANALYZED:	pm	Date:	5/29/09
Preliminary Data Sent to Special Projects:	RICM	Date:	6/1/09
Data Enery:		Date:	<u> </u>
Sinucture Review:		Oato:	
Data Valification:		Date:	
Reported to Cheek:		Daie:	· · · · · · · · · · · · · · · · · · ·

Micropreph Number	Type
	Officeation or Morphstopy

5/29/2009 11:43:17 AM

Order ID: 270900129

Phone: (218) 625-2332

Attn:

Fax:

Project:

Scott Carney

EMR, Inc.

11 East Superior Street

Suite 260

Duluth, MN 55802

(218) 625-2337

5539 052009-01

Samples collected 5/20/2009

Customer ID:

Customer PO:

Received:

EMRI78

05/21/09 10:30 AM

EMSL Order: EMSL Proj ID:

270900129

BNSF 2009 OSHA

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900129	270900129-0003	P-LP 052009		5/20/2009

Comments:	

ANALYZED:	son	Date:	5/29/09
Preliminary Data Sent to Special Projects:	RKm	Date:	6/1/09
Date Entry:		Oste:	
Sinuctore Review:		Oate:	*
Date Velitidation:		Date:	
Reported to Client:		Date:	

}	Mongraph Number	Type
		Offraction of Morphology
<u> </u>		
<del></del>		
<b></b>		

5/29/2009 11:43:17 AM

Order ID: 270900129

Attn:

Fax:

Project:

Scott Carney

EMR, Inc.

11 East Superior Street

Suite 260

Duluth, MN 55802

(218) 625-2337

5539 052009-01

Samples collected 5/20/2009

Phone: (218) 625-2332

EMSL Order:

Customer ID:

Customer PO:

Received:

270900129

EMRI78

EMSL Proj ID:

BNSF 2009 OSHA

05/21/09 10:30 AM

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900129	270900129-0004	P-DW 052009		5/20/2009

ANALYZED:	bul	Date:	c/29/00
Preliminary Data Sent to Special Projects:	R.Kan	Date:	6/1/09
Data Entry:		Date:	<u> </u>
Structure Review:		Date:	
Data Validation:	- 1	Dates	
Reported to Cheet:		Date:	

Micrograph Number	Type
	Diffraction or Morphology

5/29/2009 11:43:17 AM

Order ID: 270900129

Attn:

Fax:

Project:

Scott Carney EMR, Inc.

11 East Superior Street

Suite 260

Duluth, MN 55802

(218) 625-2337

5539 052009-01

Samples collected 5/20/2009

Phone: (218) 625-2332

EMSL Order:

Customer ID:

Customer PO:

Received:

EMSL Proj ID:

270900129

EMRI78

BNSF 2009 OSHA

05/21/09 10:30 AM

**Cust COC ID** 

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900129	270900129-0006	P-RH 052009		5/20/2009

ANALYZED:	RM	Date:	5/29/09
Preliminary Data Sent to Special Projects:	Rkin	Date:	6/1/09
Data Entry:		Oste:	<b>-</b>
Structure Review:		Cate:	
Data Validation:		Date:	
Reported to Olieat:		Date:	

Micrograph Number	Type
	Diffraction of Morphology
	Microgreph Number

# **Indirect Preparation Record**



INDIRECT PREPARATION RECORD **REVISION 1** FEBRUARY 9, 2009

TEM Dust

PCM

EFA <u>360</u> (mm2)

(Circle One)

		Indirect w	ithout ashing		Dilution Filtra	tion					Indirect w	ith Ashing		
Prepped by:	Date:	Fraction of filter used	1st Resuspend Volume	Volume applied to filter	Volume of 1st Resuspend used	2nd Re- suspend Volume	Volume applied to filter	Volume of 2nd Re- suspend used	3rd Re- suspend Volume	Volume applied to filter	Fraction of filter ashed	Volume used to resuspend residue	Volume applied to 2nd filter	OK to Prep to Grid?
Order ID	Sample #		mL.	mL	mL	mL	mL	mL	mL	mL		mL	mL	Y/N
270900129	PKF052009										1	100	10	
													15	
													25	У
													50	
	pulosz009										1	100	10	
7.													15	
													25	
													50	Y
	DDM 025000										1	(00)	10	
													80	
								16	100	10				
										15				٧
										25				<del></del>
					T pm	dilon	/			50				
	PRH 052000)	1	100	10	1	(00 M	TO MYGIR	19						
				15			15							
				25			25							
				<i>5</i> 0			50							У
	FB										_	100	100	
	AB										_	100	100	

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Page \_/ of \_2\_





(Circle One)

TEM Dust

PCM

EFA 360 (mm2)

Indirect without ashing Dilution Filtration Indirect with Ashing Prepped by: Date: Volume of Volume of Volume Fraction 1st Volume 1st 2nd Re-2nd Re-Volume 3rd Re-Volume Fraction used to Volume OK to of filter Resuspend applied to 5/28/09 Resuspend suspend applied to suspend suspend applied to of filter resuspend applied to Prep to used Volume filter used Volume filter used Volume filter ashed residue 2nd filter Grid? Sample # mL mL mL mL mL mL. mL mL mL Y/N mL 270000129 MB 100 100

Controlled Document

Confidential Business Information/Property of EMSL Analytical, INC.

Page 2 of 2

**REVISION 1** 

FEBRUARY 9, 2009



Fax: 406-293-7016



RE: Sample preparation for 270900129 (BNSF-EMR)

The following samples (P-KF052009, P-LP052009 & P-DW052009) were processed in the described method (M2):

M2 (loose material)

- 1. Loose materials in cassette consolidated with overloaded filter were prepared for ashing.
- 2. Samples placed in LFE asher until filters have been completely ashed.
- 3. Ashed sample (AS) re-suspended in 100mL particle water.
- 4. Fractions filtered (10, 15, 25 & 50mL) on 0.2μm filter backed by 5.0μm. Sample P-DW052009 was processed through second dilution.
- 5. Selected volume processed to grids.

The following samples, P-DC052009, P-JT052009, A-RB052009, A-BB052009 & B-BK052009, were processed directly.

Sample P-RH052009 was processed indirectly without ashing:

M3 (full filter used)

- 1. Sample re-suspended in 100mL particle water.
- 2. Fractions filtered (10, 15, 25 & 50mL) on 0.2μm filter backed by 5.0μm
- 3. Selected volume processed to grids.

Please refer to SOP No.: EPA-LIBBY-08 for further information.







# Asbestos Chain of Custody EMSL Order Number (Lab Use Only):

5539 052009-01

EMSL ANALYTICAL, INC. 107 HADDON AVENUE WESTMONT, NJ 08108

PHONE: (856) 858-4800 FAX: (856) 858-4960

270900129

Company: E (	pany: EMR				Bill to: D Sa ifferent note instr	me 🔲 [	Different
Street: 11 East Superior St Suite							
City: Duluth	State/	Province: MN	Zip/Postal Code	. 5	E GOZ	1	tion from third party
Report To (Name):	Scott Carne	: 4	Fax #:	· <u> </u>	, , ,	1 000	Intry: USA
Telephone #: (218			Email Address:				
Project Name/Numb	er: BUSE 26	MACO POSHA	/ 5539		0		
Please Provide Res		I Purchase Order	:	U.S	S. State Sam	ples Tal	ren: MT
3 Hours   16	Turr Hours 24 Hrs	Options* – Pleas	e Che	ck			
*For TEM Air 3 hours/6 I	nours, please call ahead to set	48 Hrs	Days  n charge for 3 Hour T		Days [	5 Day	
PCM - Air	form for this service. Analysis	Tempieted in accordance	with EMSL's Terms a	and Con	ditions located	n the Anal	lytical Price Guide.
☐ NIOSH 7400		TEM - Air AHERA 40 CFF	Dort 762		TEM- Dust		
w/ OSHA 8hr. TW	Ά	☐ NIOSH 7402	1, Fait 703		☐ Microva		· ·
PLM - Bulk (reportin	g limit)	☐ EPA Level II			☐ Wipe - A		480 n (EPA 600/J-93/167)
☐ PLM EPA 600/R-9		☐ ISO 10312			Soil/Rock/		
☐ PLM EPA NOB (<	1%)	TEM - Bulk					· A (0.25% sensitivity)
Point Count	000 (-0.40()	☐ TEM EPA NOB			☐ PLM CA	RB 435 -	B (0.1% sensitivity)
☐ 400 (<0.25%) ☐ 1 Point Count w/Gravim		☐ NYS NOB 198.4 ☐ Chatfield SOP	(non-friable-NY)		☐ TEM CA	RB 435 -	· B (0.1% sensitivity)
☐ 400 (<0.25%) ☐ 1		☐ TEM Mass Analy	roin EDA 600	0.5			C (0.01% sensitivity)
☐ NYS 198.1 (friable		TEM - Water: EPA		2.5			emi-Quantitative)
☐ NYS 198.6 NOB (i	non-friable-NY)	Fibers >10µm		na	☐ EPA Pro Other:	tocol (Qt	uantitative)
☐ NIOSH 9002 (<1%	o)	All Fiber Sizes					
	☐ Check For P	ositive Stop – Clea	arly Identify Hor	moge	nous Grou	2	
Samplers Name: M	ichael McKo		Samplers Signat				McKau
Sample #		•			Volume/Are	a (Air)	Date/Time
		Sample Description	<del></del>		HA # (B		Sampled
P.DC052009 -	Profiler - David	Castro-Rai	L Machine	,	1516	6	5 20109
P-KF052009	Profiler-Ke	th Francis-	Rail Mach	ine	1568		07:12-16:44 5120109 07:13-16:43
P.LP 052009							5/20/09
	Operator-Le	roy lauison-	Kail Mach	ine	1345	<u> </u>	07:14-15:32
r-DW 052009	Profiler - Duo	ne Williams-	Rail Mach	iuc	1340	+	5120109
^ <b>_</b>	Operator J				(170	) †	5120109
	Operator-Re				1148	,	5120109
4- RB 052009					1560	4	5 20109
A.BB052009 Bluff Base along Track			. MP 1216		1560		5120/09/
Client Sample # (s):			- 1 1 1 2 1 2		otal # of Sam		8
Relinquished (Client):	Michael Mc	Kay Date: 5	121109		otal # 01 Sall	Time:	
Received (Lab):	exm alma		•				
Comments/Special Ins		Date. 5	121/09			Time:	10 30
P = Per	Csonal A =	Area	D = DI	. 12	( ~	. 1	
,		17764	B= Bla	nK	( O P	:ned	)

OL debris

OL



# Asbestos Chain of Custody EMSL Order Number (Lab Use Only):

5539 052009-01

EMSL ANALYTICAL, INC. 107 HADDON AVENUE WESTMONT, NJ 08108

PHONE: (856) 858-4800 FAX: (856) 858-4960

Company: EN	EM If Bill to	SL-Bill to: So is Different note in	Same 🔲 🗆	Different		
Street:    Ea	st Superior	5+ Soute 760				
City: Duluth	State/	Province: MN	Zip/Postal Code:	5 5 9 5 3	ľ	tion from third party
Report To (Name):	Scott Carney		Fax #:	33 802	Cou	Intry: USA
	8) 625-233		Email Address:			
Project Name/Numb	er: BNSF 20		5539. /3	^		
Please Provide Res	ults: 🗌 Fax 📳 Ema	I Purchase Order	: J 5 3 7 . 1 5	U.S. State Sa	mnles Tak	ran:
	Turr	naround Time (TAT)	Options* – Please (	Check	inpics (ar	ten.
*For TEM Air 3 hours/6 I	hours please call ahead to sol	48 Hrs	☐ 3 Days ☐	4 Days	☐ 5 Days	
	form for this service. Analysis	completed in accordance	n charge for 3 Hour TEN with EMSL's Terms and	f AHERA or EPA L f Conditions locate	evel II TAT.	You will be asked to sign
1 <del></del>		IEM - AIF		TEM- Du	st	y Hour F 7100 Curde.
☐ NIOSH 7400	/ A.	AHERA 40 CFF	R, Part 763	☐ Microv	ac - ASTM	D 5755
w/ OSHA 8hr. TW		☐ NIOSH 7402		☐ Wipe -	ASTM D6	480
PLM - Bulk (reportin PLM EPA 600/R-9		EPA Level II		☐ Carpe	t Sonication	n (EPA 600/J-93/167)
PLM EPA 600/R-9	, ,	☐ ISO 10312			<td></td>	
Point Count	1%)	TEM - Bulk		☐ PLM C	ARB 435 -	A (0.25% sensitivity)
☐ 400 (<0.25%) ☐ 1	000 (<0.19/)	TEM EPA NOB		☐ PLM C	ARB 435 -	B (0.1% sensitivity)
Point Count w/Gravim		☐ NYS NOB 198.4 ☐ Chatfield SOP	(non-friable-NY)			B (0.1% sensitivity)
☐ 400 (<0.25%) ☐ 1						C (0.01% sensitivity)
☐ NYS 198.1 (friable		TEM - Water: EPA	/sis-EPA 600 sec. 2.			mi-Quantitative)
☐ NYS 198.6 NOB (		Fibers >10µm			rotocol (Qu	ıantitative)
☐ NIOSH 9002 (<1%	•	All Fiber Sizes		Other:		
<u> </u>		nsitive Ston Clar	vvasie Drinking			
		ositive Stop – Clea	arry identity Home	ogenous Gro	up	
Samplers Name: V	richael McK	an	Samplers Signatur	re: Mich	420	Mekay
Sample #		Sample Description		Volume/A HA # (	rea (Air)	Date/Time
B. BK 052009		***************************************		11/4"	Duik)	Sampled 5,20109
0 017 032007	Field Blan	K - Opened			J	W
				l	i	10
,		· · · · · · · · · · · · · · · · · · ·		<del></del>		
		<u> </u>			İ	
Client Sample # (s):		_				
	AA \			Total # of Sa	amples:	9
Descind (L. 1)	Michael M	CKay Date: 5	121/09		Time:	10;30
Received (Lab): Comments/Special Ins	k. Makorg	Date: 4	1/21/09		Time:	10 30
		. 1	•			-
D= Bla	nk (Opene	<u>d )                                   </u>				



#### EMSL Analytical, Inc.

107 West 4th Street, Libby, MT 59923

Phone: (406) 293-9066 Email: mobileasbestoslab@emsl.com Fax.

Attn: Scott Carney

EMR, Inc.

11 East Superior Street

Suite 260

**Duluth, MN 55802** 

Customer ID:

EMRI78

Customer PO: Received:

05/21/09 10:30 AM

EMSL Order:

270900129

Fax:

Project:

(218) 625-2337

Phone: (218) 625-2332

5539 052009-01

Samples collected 5/20/2009

EMSL Proj:

BNSF 2009 OSHA

Analysis Date:

5/29/2009

Sampling Date:

5/20/2009

### Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) Performed by EPA 40 CFR Part 763 Appendix A to Subpart E

Sample P-DC 052009 270900129-0001	Location	Volume (Liters) 1516.00	Area Analyzed (mm²) 0.0520	Non Asb	Asbestos Type(s) None Dete	# Structures $\geq 0.5\mu < 5\mu \qquad \geq 5\mu$ exted	Analytical Sensitivity (S/cc)	Asbe Concen (S/mm²) <19.00	
P-JT 052009 270900129-0005		1170.00	0.0780	-	None Dete	cted	0.0042	<13.00	<0.0042
A-RB 052009 270900129-0007		1560.00	0.0520	, ,	None Dete	cted	0.0047	<19.00	<0.0047
A-BB 052009 270900129-0008		1560.00	0.0520		None Dete	cted	0.0047	<19.00	<0.0047
B-BK 052009 270900129-0009 Field Blank		,	0.1300		None Dete	cted		<7.70	

Analyst(s)

Roy Pescador (5)

R. K. Mahoney, Laboratory Manager or other approved signatory

Disclaimers: The laboratory is not responsible for data reported in structures/cc, which is dependent on volume collected by non-laboratory personnel. This lab is only responsible for data reported in structures/mm². This report may not be reproduced, except in full, without written approval by EMSL. This report must not be used to claim product endorsement by NVLAP or any agency of the U.S. Government. This report relates only to the samples reported above. Quality control data (including 95% confidence limits and laboratory and analysts' accuracy and precision) is available upon request. As per 40 CFR 763, the initial screening test may not be applied to samples with collected volumes of <1200 liters. The test results contained within this report meet the requirements of NELAC unless otherwise noted. Samples received in good condition unless otherwise noted. Accredited for NVLAP PLM/TEM. NVLAP Libby code: 200745-0



#### EMSL Analytical, Inc.

107 West 4th Street, Libby, MT 59923

Phone: (406) 293-9066 Email: mobileasbestostab@emsl.com

Attn: Scott Carney

EMR, Inc.

11 East Superior Street

Suite 260

**Duluth, MN 55802** 

(218) 625-2337

Phone: (218) 625-2332

Project: 5539 052009-01

Fax:

Samples collected 5/20/2009

Customer ID:

EMRI78

Customer PO: Received:

05/21/09 10:30 AM

EMSL Order:

270900129

EMSL Proj: Analysis Date: BNSF 2009 OSHA 5/29/2009

Sampling Date:

5/20/2009

### Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) Performed by AHERA -EPA 40 CFR Part 763 Appendix A to Subpart E (Modified for Indirect Prep)

Sample	Location	Volume (Liters)	Area Analyzed (mm²)	Non Asb	Asbestos Type(s)	# Structur ≥ 0.5µ < 5µ	es ≥5µ	Analytical Sensitivity (S/cc)	Total A Concen (S/mm²)	
P-KF 052009 270900129-0002		1568.00	0.1300		None Dete	ected		0.0071	<29.00	<0.0071
P-LP 052009 270900129-0003		1345.00	0.1170		None Dete	ected	·i	0.0046	<16.00	<0.0046
P-DW 052009 270900129-0004		1340.00	0.1300		None Dete	ected		0.1400	<480.00	<0.1400
P-RH 052009 270900129-0006		1148.00	0.1300		None Dete	cted		0.0048	<14.00	<0.0048

Analyst(s)

Roy Pescador (4)

R. K. Mahoney, Laboratory Manager or other approved signatory

This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. EMSL is not responsible for data reported in structures/cc, which is dependent on wolume collected by non-laboratory personnel. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted. Accredited for NVLAP PLM/TEM. NVLAP Libby code: 200745-0

0,5

None

#### BNSF 2009 OSHA **TEM Asbestos Structure Count**

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (27-2)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	6,013
Scale: 1L =	<b>1</b> 000
Scale: 1D=	
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	P- <b>№</b> 052009
Sample Type (A=Air, D=Dust, DF = Dustfall):	Α
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1516
Date received by lab	5/21/2009
Lab Job Number:	270900129
Lab Sample Number:	270900129-0001
Number of grids prepared	3
Prepared by	R. Pescador
Preparation date	5/29/2009
EPA COC Number:	5539 052009-01
Secondary filter pore size (um)	0.2

<b>5 / 29/</b> 2009
D
No
AHERA
2709-EMR-49, H
Westmont
Not QA

Stopping Rules: Target Sensitivity: 0.005 Max # of GOs: 4 Target # of Structures:

> Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0] First resuspension volume or rinsate

Recording Rules:

none

Minimum Length (um):

Minimum Width (um):

Minimum Aspect Ratio (circle one):

≥ 3:1

#### F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right---->

Grid	Grid Opening	Structure	No. of Structures		Dime	Dimensions Identi		Mi	neral Class	(see belo	w)	Sketch/ Comments			Fract.	F-factor Calculate	on:	
		Туре	Primary	Total	Length	Width		LA	OA	С	NAM	OREIGN COMMENTS	Sketch	Photo	EDS	Chrys.	Indirect Prep Inp	
	D3	NO				<u> </u>											Fracti	on of primary ct prep or ash
	F3	NO															First	esuspension ( e (mL)
	DZ	ND															Volum (mL) c	e applied to
	H <sub>1</sub>	Np															<u> </u>	
\														ļ			Inputs for Serial I	Ollutions d resuspens
									-								Volum (mL) o	e applied to
			(11) (12) (11)															esuspension
·····			70														Volum (mL)	e applied to
																	Input for Ashing of	of Soconda
																	I I	n of seconda

	Volume applied to secondary filter (mL) or used for serial dilution
Inputs for	Serial Dilutions
	7
	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal

Vertical

Are prepped grids acceptable for analysis? (circle one) If No, explain:



Fraction of secondary filter used for

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (27-2)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0,013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	365
Secondary Filter Area (mm2)	340
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	P-KF052009
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1568
Date received by lab	5/21/2009
Lab Job Number:	270900129
Lab Sample Number:	270900129-0002
Number of grids prepared	
Prepared by	
Preparation date	
EPA COC Number:	5539 052009-01
Secondary filter pore size (um)	0.2

Analyzed by	
Analysis date	
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	р
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	YES
Counting rules (ISO, AHERA, ASTM)	AHERA
Grid storage location	
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA
and the state of t	

F-Factor Calculation (Indirect Preps Only):
Enter data in appropriate cells provided to the right>

ntio (circle d	one):
3:1	251
n):	0.5
);	None
	n):

Target Sensitivity: 0.005  Max # of GOs:  Target # of Structures;	Stopping Rule	≥S.	
4	Target Sensiti	vity: 0.005	
Target # of Structures	Max # of GOs		
	Target # of Str	nictures:	

Grid Opening	Structure	No. of St	ructures	Dime	nsions	Identification	Mineral Class (see below)				1 = yes, blank = no			Fract.	
	туре	Primary	Total	-		dentilication	LA	OA	С	NAM	Sketch/ Comments	<u> </u>			GO
]	N/8	RI	74I	510	<b>\</b>							Choton	1 11010	203	Chrys.
		100	0,10	0.1						<u> </u>					i
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			į	-									$\neg \uparrow$		
		Type	Grid Opening Type Primary	Type Primary Total	Type Primary Total Length	Grid Opening Type	Type Primary Total Length Width	Type Primary Total Length Width	Type Primary Total Length Width Identification LA OA	Type Primary Total Length Width	Type Primary Total Length Width Identification LA OA C NAM	Type Primary Total Length Width Identification LA OA C NAM	Type Primary Total Length Width Identification LA OA C NAM Sketch/ Comments Sketch	Type Primary Total Length Width Identification LA OA C NAM Sketch/Comments Sketch Photo	Type Primary Total Length Width Identification LA OA C NAM Sketch/Comments Sketch Photo EDS

F-factor	Calculation
I Hacior	Calculation

Indirect Prep Inputs
Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]
First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

ᆚ	nputs for S	Serial Dilutions
		Second resuspension volume (mL
		Volume applied to secondary filter (mL) or used for serial dilution
		Third resuspension volume (mL)
		Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter
Fraction of secondary filter used for ashing

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal

V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (27-2)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0,013
Scale: 1L =	
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	P- <b>≮F</b> 052009				
Sample Type (A=Air, D=Dust, D= Dustfall):	Α				
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1568				
Date received by lab	5/21/2009				
Lab Job Number:	270900129				
Lab Sample Number:	270900129 <b>-</b> 000 <b>2</b>				
Number of grids prepared	3				
Prepared by	R. Pescador				
Preparation date	5/29/2009				
EPA COC Number:	5539 052009-01				
Secondary filter pore size (um)	0.2				

Analyzed by	R. Pescador
Analysis date	5/29/2009
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	IA
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	YES RUTSP2910
Counting rules (ISO, AHERA, ASTM)	AHERA
Grid storage location	2709-EMR-49,
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

#### F-Factor Calculation (Indirect Preps Only): Enter data in appropriate cells provided to the right---->

Recording Rules:	
Minimum Aspect Ratio (circ	le one):
none ≥ 3:1	25,1
Minimum Length (um)	0.5
Minimum Width (um):	None

Stopping Rules:	
Target Sensitivity:	0.005
Max # of GOs:	10
Target # of Structures:	

Grid	Grid Opening	Structure	No. of Sti	ructures	Dimer	nsions	Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract.
		Туре	Primary	Total	Length	Width	Identification	LA	OA	С	NAM	Sketch/ Comments	Sketch	Photo	ED\$	GO Chrys.
1	Hz	ND														
	144	N														
	46	NO														
	<b>E</b> 7	Nŋ														
	છ	N														
2	GI	ND														
	G3	ND														
	GS	M														
	67	NO														
	Ge)	ND														

F-factor	Calculation:

Indirect Prep Inputs Fraction of primary filter used for Indirect prep or ashing [For dust and dustfall, enter 1.0] First resuspension volume or rinsate 100 volume (mL) Volume applied to secondary filter (mL) or used for serial dilution My 5/29/02

Inputs for Serial Dilutions Second resuspension volume (mL) Volume applied to secondary filter (mL) or used for serial dilution Third resuspension volume (mL) Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter Fraction of secondary filter used for ashing

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal

V Vertical

Are prepped grids acceptable for analysis? (circle one) (Yes) No



If No, explain:

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (27-2)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D ≈	
Primary filter area (mm2)	3 <i>8</i> √
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

Structure

Type

No. of Structures

Total

Primary

EPA Sample Number:	P-LP 052009
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1345
Date received by lab	5/21/2009
Lab Job Number:	270900129
Lab Sample Number:	270900129-0003
Number of grids prepared	
Prepared by	
Preparation date	
EPA COC Number:	5539 052009-01
Secondary filter pore size (um)	0.2

Identification

LA

Analyzed by	
Analysis date	
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	В
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	YES
Counting rules (ISO, AHERA, ASTM)	AHERA
Grid storage location	
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right---->

Sketch/ Comments

one):
25.1
0.5
None

Stopping F	≀ules														-
													ij		
Target Ser	sitivi	ty							(	).	0	0	5		i
							 i	1			::				 -
Max # of G	Os:					Ξ,		H		c	i				
		0				1			•	_				-	-
Target # of	Stru	ct	ur	es							1				

F-factor	Calculation:
, 1000	Calculation.

Fract.

GO

Chrys.

Indirect Prep Inputs

1	Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
	First resuspension volume or rinsate volume (mL)
_	Volume applied to secondary filter

Inputs for Serial Dilutions

Second resuspension volume (mi
Volume applied to secondary filte (mL) or used for serial dilution
Third resuspension volume (mL)
Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter
Fraction of secondary filter used for ashing

LA = Libby-type amphibole

Grid

Grid Opening

OA = Other (non-Libby type) amphibole

Dimensions

Width

Length

C = Chrysotile

NAM = Non-asbestos material

1 = yes, blank = no

Photo

EDS

Sketch

Grid opening traverse direction (circle one):

H Horizontal

Mineral Class (see below)

С

NAM

OA

V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No If No, explain:


≥ 5:1

0.5

None

#### **BNSF 2009 OSHA** TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX JI (27-2)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	100 mg/mg/mg/mg/mg/mg/mg/mg/mg/mg/mg/mg/mg/m
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

	<del></del>
EPA Sample Number:	P- <b>4</b> 052009
Sample Type (A=Air, D=Dust, DF = Dustfall):	Α
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1345
Date received by lab	5/21/2009
Lab Job Number:	270900129
Lab Sample Number:	270900129-000
Number of grids prepared	3
Prepared by	R. Pescador
Preparation date	5/29/2009
EPA COC Number:	5539 052009-01
Secondary filter pore size (um)	0.2

nalyzed by	R. Pescador	
nalysis date	5 / 29/2009	
ethod (D=Direct, l=Indirect, IA=Indirect, hed)	ΙA	
sample type = air, is there loose material debris in the cowl? (Yes, No)	Yes stell	109
ounting rules SO, AHERA, ASTM)	AHERA	~ 7
id storage location	2709-EMR-49,	
chive filter(s) storage location	Westmont	
Type (Not QA, Recount Same, Recount ferent, Re-prep, Verified Analysis, conciliation, Lab Blank, Interlab)	Not QA	

#### Stopping Rules: Target Sensitivity: 0.005 Max # of GOs: 9 Target # of Structures:

Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0] First resuspension volume or rinsate

Recording Rules:

none

Minimum Length (um):

Minimum Width (um):

F-factor Calculation: Indirect Prep Inputs

/00 volume (mL)

Minimum Aspect Ratio (circle one):

≥ 3:1

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right---->

Grid Grid Openin	Grid Opening	Structure	No. of St	ructures	Dimensions		Identification	Mineral Class (see below)				1 = yes, blank = no			Fract.	
		Туре	Primary	Total	Length	Width	rde/itincation	LA	OA	С	NAM	Sketch/ Comments	Sketch	Photo	EDS	GO Chrys.
l	41	ND														
	#3	ND														
	HS	ND														
	+17	No														
	#4)	No														
<u>-</u>	aø	ND														
	cg	ND														
	CG	QN														
	C4	NO														
			SW	5/29/10												

50	Volume applied to secondary filter (mL) or used for serial dilution
Inputs for	Serial Dilutions
	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
· · ·	Third resuspension volume (mL)

Input for Ashing of Secondary Filter Fraction of secondary filter used for ashing

(mL)

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

Horizontal

(v)Vertical Are prepped grids acceptable for analysis? (circle one) (es) No If No, explain:



Volume applied to secondary filter

Page 1 of	1
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Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (27-2)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0,013
Scale: 1L =	
Scale: 1D =	
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	ه عا و
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	P- 0W 052009		
Sample Type (A=Air, D=Dust,    DF = Dustfall):	A		
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1340		
Date received by lab	5/21/2009		
Lab Job Number:	270900129		
Lab Sample Number:	270900129-000		
Number of grids prepared			
Prepared by			
Preparation date			
EPA COC Number:	5539 052009-01		
Secondary filter pore size (um)	0.2		

n
YES
AHERA
Westmont
Not QA

F-Factor Calculation (Indirect Preps Only): Enter data in appropriate cells provided to the right---->

Recording Re	ules:	
Minimum Asj	pect Ratio (circ	le one):
none	≥3.1	(25 <u>1</u> )
Minimum Ler	ngth (um):	0.5
Minimum Wic	tth (um):	None

Stopping	Rules					
		1100				
Target S	encitivit	**				
· u.gu. u	CITOTUAL	٠,٠			U.	005
Lastinia es				-	******	11111111111111
Max#of	GOs:		8.13		4	•
Target #	of Stru	chure	e.			
			~			

Grid	Grid Opening	Structure	No. of Structures		Dimensions		Dimensions		Identification	Mi	neral Class	(see belo	w)		1 = ye	es, blank	= no	Fract.
		Туре	Primary	Total	Length	Width		LA	OA	С	NAM	Sketch/ Comments	Sketch	Photo	EDS	GO Chrys.		
		0/8	01	04	75	2										Onlys.		
				0/1					<del> </del>	<u> </u>	<u> </u>							
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	[									_	<del> </del> -			$\vdash$				
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F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
First resuspension volume or rinsate volume (mL)
Volume applied to secondary filter

Inputs for Serial Dilutions

 l Dildtons
Second resuspension volume (mL
Volume applied to secondary filter (mL) or used for serial dilution
Third resuspension volume (mL)
Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter Fraction of secondary filter used for ashing

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal

V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (27-2)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	
Scale: 1D =	
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	P- <b>b-)</b> 052009
Sample Type (A=Air, D=Dust, DF = Dustfall):	Α
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1340
Date received by lab	5/21/2009
Lab Job Number:	270900129
Lab Sample Number:	270900129-000-
Number of grids prepared	3
Prepared by	R. Pescador
Preparation date	5/29/2009
EPA COC Number:	5539 052009-01
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	<b>S</b> / <b>29</b> /2009
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	T A
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	YES prosperles
Counting rules (ISO, AHERA, ASTM)	AHERA
Grid storage location	2709-EMR-49, I
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA
,	

F-Factor Calculation (Indirect Preps Only):	

Enter data in appropriate cells provided to the right---->

Recording Rules:	
Minimum Aspect Ratio (circ	le one):
none ≥ 3;1	251)
Minimum Length (um):	0,5
Minimum Width (um):	None

Stopping Rules:	
Target Sensitivity:	0.005
Max # of GOs:	10
Target # of Structures:	

#### F-factor Calculation:

Indirect Prep Inputs
Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0] First resuspension volume or rinsate 100 volume (mL) Volume applied to secondary filter (mL) or used for serial dilution

inputs for S	Serial Dilutions
100	Second resuspension volume (mL)
15	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter Fraction of secondary filter used for ashing

Grid	Grid Opening	Structure	No. of Structures		Dime	nsions	Identification	Mir	neral Class	(see belo	w)	81-1-1-10	1 = ye	s, blank	= no	Fract.
		Туре	Primary	Total	Length		LA	OA	С	NAM	Sketch/ Comments	Sketch	Photo	EDS	GO Chrys.	
1	દહ	DW														
	Eg	an														
	દાછ	<i>N</i> D														
	В7	No														
	в9	NO														
2	D9	ND														
	77	M														
	25	ND														
	793	Ŋ														
	Di	ND														

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one): Horizontal

(Vertical

Are prepped grids acceptable for analysis? (circle one) No If No, explain:



0.5

None

#### **BNSF 2009 OSHA TEM Asbestos Structure Count**

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (27-2)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary fitter area (mm2)	<b>38</b> 5
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary fitter pore size (um)	0.8

EPA Sample Number:	P-JT 052009
Sample Type (A=Air, D=Dust, DF = Dustfall):	Α
Air volume (L), dust area (cm2), or dustfall container area (cm2)	סדוז
Date received by lab	5/21/2009
Lab Job Number:	270900129
Lab Sample Number:	270900129-000
Number of grids prepared	3
Prepared by	R. Pescador
Preparation date	5/29/2009
EPA COC Number:	5539 052009-01
Secondary fitter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	5 / <b>29</b> /2009
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	AHERA
Grid storage location	2709-EMR-49,
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA
	ŀ

Target Sensitivity:	0.005
Max # of GOs:	6

#### F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right---->

F-factor Calcul	Fract.	= no	s, blank	1 = ye	Sketch/ Comments	<b>~</b> )	(see belo	eral Class	Mir	Identification	nsions	Dimer	ructures	No. of St	Structure	Grid Opening	Grid
Indirect Prep II	GO Chrys.	EDS	Photo	Sketch	Sketch Comments	NAM	С	OA	LA	TOO TRINIDOCTORY	Width	Length	Total	Primary	Туре		
Fra ind (Fo								·							ŊĴ	GT	<u> </u>
Fire															NO	63	······································
Voi (mi															No	<b>હા</b>	·
Inputs for Seria															ND	רע	
Sec															ND	DS	
Vol.															No	P3	
Thi																	<u>\</u>
Vol.																	
Input for Ashin													<del>%</del>	Songer			
Fra												_	~~	Ĭ			•

Indirect prep or ashing [For dust and dustfall, enter 1.0] First resuspension volume or rinsate volume (mL)
 Mahama and Sadah and and and

Volume applied to secondary filter (mL) or used for serial dilution

Fraction of primary filter used for

Inputs for Serial Dilutions

Recording Rules:

none

Minimum Length (um):

Minimum Width (um):

Minimum Aspect Ratio (circle one):

≥ 3:1

Second resuspension volume (mL) Volume applied to secondary fitter (mL) or used for serial dilution Third resuspension volume (mL)

Input for Ashing of Secondary Filter Fraction of secondary filter used for

Volume applied to secondary filter

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

Horizontal

✓ Vertical

Are prepped grids acceptable for analysis? (circle one) (Yes



If No, explain:

Laboratory name:	EMSL27  JEOL 100 CX II (27-2)		
Instrument			
Voltage (KV)	100		
Magnification	19,000 X		
Grid opening area (mm2)	0.013		
Scale: 1L =	1		
Scale: 1D ≈	ŧ		
Primary filter area (mm2)	385		
Secondary Filter Area (mm2)	3(20		
Category (Field, Rep., Dup., Blank)	Field		
Primary filter pore size (um)	0.8		

Structure

No. of Structures

EPA Sample Number:	P-RH 052009
Sample Type (A=Air, D=Dust, DF = Dustfall):	<b>A</b>
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1148
Date received by lab	5/21/2009
Lab Job Number:	270900129
Lab Sample Number:	270900129-0006
Number of grids prepared	
Prepared by	
Preparation date	
EPA COC Number:	5539 052009-01
Secondary filter pore size (um)	0.2

Identification

NO
AHERA
Westmont
Not QA

F-Factor Calculation (Indirect Preps Only): Enter data in appropriate cells provided to the right---->

Recording Rules:	
Minimum Aspect Ratio (c	ircle one):
none ≥3:1	251
Minimum Length (um):	0.5
Minimum Width (um):	None

Stopp	na R	udes								Т
Target	Sen	sitiv	tv					٠.,	ve	
			٠,,				``	<i>.</i>	כנ	
Max#	of C	ne.								
		٠.					(	6		
Target	# ~6	C+-	٠.							
· a. ycı	₩ CI	Siru	····	иe	٥,					

#### Type Sketch/ Comments Primary GO Total Length Width LA OA С NAM Sketch Photo EDS Chrys.

<u>F-1</u>	<u>facto</u>	<u>r Ca</u>	lcul	atio	n:

Fract.

Indirect Pr	ep inputs
	Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
	First resuspension volume or rinsat volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for S	Serial Dilutions
<u></u>	Second resuspension volume (ml
	Volume applied to secondary filte (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

nput for A	shing of Secondary Filter
	Fraction of secondary filter used for ashing

LA ≈ Libby-type amphibole

Grid

Grid Opening

OA = Other (non-Libby type) amphibole

Dimensions

C = Chrysotile

Mineral Class (see below)

NAM = Non-asbestos material

1 = yes, blank ≈ no

Grid opening traverse direction (circle one):

H Horizontal

V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

|--|

≥ 5:1.

0.5

None

#### BNSF 2009 OSHA **TEM Asbestos Structure Count**

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (27-2)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	
Scale: 1D=	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	P- <b>R:1</b> 052009
Sample Type (A=Air, D=Dust, DF = Dustfall):	Α
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1148
Date received by lab	5/21/2009
Lab Job Number:	270900129
Lab Sample Number:	270900129-0006
Number of grids prepared	3
Prepared by	R Pescador
Preparation date	5/29/2009
EPA COC Number:	5539 052009-01
Secondary filter pore size (um)	0.2

R. Pescador
<i>\$/ <b>2</b>9/2009</i>
I
No
AHERA
2709-EMR-49, T
Westmont
Not QA

Stopping Rules:	
Target Sensitivity:	0.005
Max # of GOs:	.,,

Recording Rules:

none

Minimum Length (um):

Minimum Width (um):

Minimum Aspect Ratio (circle one):

≥ 3:1

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right---->

Grid	Grid Opening	Structure	No. of St	ructures	Dime	nsions	Identification	Mir	neral Class	(see belo	w)	Stateh Comments	1 = ye	es, blank	= no	Fract.	
			Туре	Primary	Total	Length	Width	- Identification	LA	OA	С	NAM	Sketch/ Comments	Sketch	Photo	EDS	GO Chrys.
1	<b>B9</b>	ND															
	87	ND															
	B5	ND															
	B3	ND															
	BI	ND															
2	GZ	140												,			
	64	ND															
	G6	ND															
	G8	ND															
		NO											· · · · · · · · · · · · · · · · · · ·				

Indirect Pre	ep Inputs
10	Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
	First requenension volume or rines

100 volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

F-factor Calculation:

Second resuspension volume (mL) Volume applied to secondary filter (mL) or used for serial dilution Third resuspension volume (mL) Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter Fraction of secondary filter used for

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal

Vertical

Are prepped grids acceptable for analysis? (circle one) (Yes) No If No, explain:



€ 5:1)

0.5

None

### BNSF 2009 OSHA TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (27-2)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0,013
Scale: 1L ≃	1
Scale: 1D =	
Primary fitter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	A-128052009
Sample Type (A=Air, D=Dust, DF = Dustfall):	Α
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1760
Date received by lab	5/21/2009
Lab Job Number:	270900129
Lab Sample Number:	270900129-0007
Number of grids prepared	3
Prepared by	R. Pescador
Preparation date	5/29/2009
EPA COC Number:	5539 052009-01
Secondary filter pore size (um)	0.2

R. Pescador
5 /29/2009
D
No
AHERA
2709-EMR-49,
Westmont
Not QA

Stopping Rules:

Target Sensitivity: 0.005

Max # of GOs: 4

Target # of Structures:

Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0] First resuspension volume or rinsate

Recording Rules:

none

Minimum Length (um):

Minimum Width (um):

F-factor Calculation: Indirect Prep Inputs

Minimum Aspect Ratio (circle one):

≥ 3:1

#### F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right---->

Grid	Grid Opening	Structure	No. of Sti	ructures	Dimensions		Identification	Mineral Class (see below)			Sketah/Comment	1 = yes, blank = no			Fract	
	, i	Туре	Primary	Total	Length	Width	racritilloution	LA	OA	С	NAM	Sketch/ Comments	Sketch	Photo	EDS	GO Chrys
İ	Cs	ろう														
	C8	ND														
2	<u>12</u>	ND														
	די	ND														
														_		
														_		
				Sm	2											
				X	ZZ/QS				:							

	volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
Inputs for 5	Serial Dilutions
	Second resuspension volume (mL
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mt.)
	Volume applied to secondary filter (mL)

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal
Vertical

Are prepped grids acceptable for analysis? (circle one) (
If No, explain:



Input for Ashing of Secondary Filter

No

Fraction of secondary filter used for

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (27-2)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	०।०।३
Scale: 1L =	<b>1</b> 222
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	A- 68 052009
Sample Type (A=Air, D=Dust, DF = Dustfall):	Α
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1560
Date received by lab	5/21/2009
Lab Job Number:	270900129
Lab Sample Number:	270900129-000
Number of grids prepared	3
Prepared by	R Pescador
Preparation date	5/29/2009
EPA COC Number:	5539 052009-01
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	512912009
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	AHERA
Grid storage location	2709-EMR-49,
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

#### F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right---->

Recording Rules:	
Minimum Aspect Ratio (ci	rcle one):
none ≥ 3:1	25:1
Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:	
Target Sensitivity:	0.005
Max # of GOs:	4
Target # of Structures:	

#### F-factor Calculation:

Indirect Prep Inputs Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0] First resuspension volume or rinsate volume (mL) Volume applied to secondary filter (mL) or used for serial dilution

#### Inputs for Serial Dilutions Second resuspension volume (mL) Volume applied to secondary filter (mL) or used for serial dilution Third resuspension volume (mL) Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter Fraction of secondary filter used for ashing

Grid Grid (	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Stateh Comment	1 = yes, blank = no			Fract.
			Primary	Total	Length	Width	i de i i i i i i i i i i i i i i i i i i	LA	OA	С	NAM	Sketch/ Comments	Sketch	Photo	EDS	GO Chrys.
1	<b>A</b> 7	ND														
	A)	ND														
2	#4	ND														
	46	ND														
				em												
			7	em	200											

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

Horizontal Vertical

Are prepped grids acceptable for analysis? (circle one) (Yes) No If No, explain:



Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (27-2)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary fitter area (mm2)	38r
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Blank
Primary filter pore size (um)	0.8

EPA Sample Number:	B-BK 052009
Sample Type (A=Air, D=Dust, DF = Dustfall):	А
Air volume (L), dust area (cm2), or dustfall container area (cm2)	0
Date received by lab	5/21/2009
Lab Job Number:	270900129
Lab Sample Number:	270900129 <b>-</b> 000 <b>9</b>
Number of grids prepared	3
Prepared by	R. Pescador
Preparation date	5/29/2009
EPA COC Number:	5539 052009-01
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	5 /29/2009
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	AHERA
Grid storage location	2709-EMR-49, <b>J</b>
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

#### F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right---->

Recording Rules:	
Minimum Aspect Ratio (circ	le one);
none ≥3:1	251
Minimum Length (um):	0,5
Minimum Width (um):	None

Stopping Rules:		
Target Sensitivity:		
Max # of GOs:	10	
Target # of Structures:		

#### F-factor Calculation:

Indirect Prep Inputs Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0] First resuspension volume or rinsate volume (mL) Volume applied to secondary filter (mL) or used for serial dilution

Inputs for S	Serial Dilutions
	Second resuspension volume (mL
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary fitter (mL)

Input for Ashing of Secondary Filter Fraction of secondary filter used for

Grid	Grid Opening	Structure	No. of St	ructures	Dimensions		Identification	Mir	neral Class	(see belo	w)		1 = yes, blank = no			Fract.
		Туре	Primary	Total	Length	Width	Identification	LA	OA	С	NAM	Sketch/ Comments	Sketch	Photo	EDS	GO Chrys.
1	II	NO	_													
	ŢЗ	NO														
	ĪS	<i>N</i> 0														
	I7	NO											<del></del>			
	19	No														
2	DIØ	No														
	D8	NO														
	D/6	No		<del></del>												
	D4	ND												-		
	DZ	No														

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

Horizontal

Vertical

Are prepped grids acceptable for analysis? (circle one) No If No, explain:

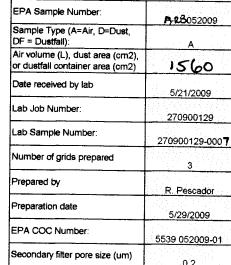


≥ 5:1

0.5

None

#### BNSF 2009 OSHA **TEM Asbestos Structure Count**



Analyzed by	E.Wyatt-Pescador
Analysis date	<b>5</b> , <b>29</b> ,2009
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	AHERA
Grid storage location	2709-EMR-49,
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Recount Different

Stopping Rules: Target Sensitivity: 0.005 Max # of GOs: Target # of Structures:

Recording Rules:

Minimum Length (um):

Minimum Width (um):

F-factor Calculation:

Minimum Aspect Ratio (circle one):

≥ 3:1

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right---->

(urii) 0.8				0.2			Enter data in appropriate cells provided to the right>									
Grid Grid Opening		Structure	No. of Sti	ructures	Dime	nsions	Identification	Mir	neral Class	(see belo	w)	Stratal Comment	1 = ye	es, blank =	= no	Fract.
	Туре	Primary	Total	Length	Width	1 identification	LA	OA	С	NAM	Sketch/ Comments	Sketch	Photo	EDS	GO Chrys.	
1	C6	ИD														
	CB	ND													i	
2	I5	ND														
	<b>T7</b>	ND														
				En			169	<del></del>								
						<b>3</b>										
						~	109									
									/							
	·						· 1		<u> </u>							

Indirect P	rep Inputs
	Fraction of primary filter used for indirect prep or ashing
	[For dust and dustfall, enter 1.0]
	First resuspension volume or rinsat volume (mL)
	Volume applied to secondary filter

Inputs for Serial Dilutions Second resuspension volume (mL) Volume applied to secondary filter (mL) or used for serial dilution Third resuspension volume (mL) Volume applied to secondary filter

Input for Ashing of Secondary Filter Fraction of secondary filter used for

LA = Libby-type amphibole

Laboratory name:

Instrument

Voltage (KV)

Magnification

Scale: 1L =

Scale: 1D =

(mm2)

(mm2)

(um)

Dup., Blank)

Grid opening area

Primary filter area (mm2)

Secondary Filter Area

Category (Field, Rep.,

Primary filter pore size

EMSL27

JEOL 100 CX II (27-2)

100

19,000 X

0.013

385

360

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

Horizontal (V) Vertical

ve prepped grids acceptable for analysis?	(circle one)	Yes
No, explain:		



## **INTERNAL CHAIN OF CUSTODY**

6/2/2009 9:06:56 AM

Order ID: 270900145

Phone: (218) 625-2332

Cust. Sample #

B-BK052109

Attn:

Fax:

Project:

Scott Carney

EMR, Inc.

11 East Superior Street

Suite 260

Duluth, MN 55802

(218) 625-2337

5539 052109-01

Samples collected 5/21/2009

Lab Sample #

270900145-0007

Customer ID:

Customer PO:

Received:

05/27/09 10:50 AM

EMSL Order:

270900145

EMRI78

EMSL Proj ID:

BNSF 2009 OSHA

**Cust COC ID** 

RA <u>M</u>	<u>atrix</u> Air	TAT: 24 Hour	<b>Qty:</b> 1
Sisprsn:	epodell	Logged: mahoney	<b>Date:</b> 5/28/2009
ransfer		Sample Acceptable Condition: Unacceptable	
quished:	Date	Comments	
ved:	Date		
d to Westmont:	Date		
very:		Initial Prep (Initials/Lab): And	Date: 6/1/09
le)		Filter Prep (Initials/Lab): My	Date: 6/1/09
Sample Slides GridBox	Sample filters Other	Grid Prep (Initials/Lab): //	Date: 6/ι/υς
ceived <u>:</u>	Date:	A Company Servery	計算で <u>。</u> 1988年には
		in the transfer of the property of the second	**************************************
	SIsprsn:  ansfer  quished: ved: d to Westmont: very: le) Sample Slides GridBox	SIsprsn: epodell  ansfer  quished: Date  ved: Date d to Westmont: Date  very: le) Sample Slides Sample filters GridBox Other  cceived: Date:	Sisprsn: epodell  Logged: rmahoney  Sample Acceptable Condition: Unacceptable Comments  Comments  Logged: rmahoney  Sample Acceptable Condition: Unacceptable Comments  Logged: rmahoney  Sample Acceptable Comments  Logged: rmahoney  Initial Prep (Initials/Lab): Proposition: Unacceptable Comments  Logged: rmahoney  Sample Condition: Unacceptable Comments  Logged: rmahoney  Sample Condition: Unacceptable Comments  Comments  Initial Prep (Initials/Lab): Proposition  Filter Prep (Initials/Lab): Proposition  Grid Prep (Initials/Lab): Proposition  Comments  Date:

Location

Order ID

270900145

2709-EMR-49(Q-T) 2709 EMR - ARC-50 CH-1)

**Due Date** 

5/28/2009 10:50:00 AM

5/28/2009 6:45:05 AM

Order ID: 270900145

Phone: (218) 625-2332

Attn:

Fax:

Project:

Scott Carney

EMR, Inc.

11 East Superior Street

Suite 260

Duluth, MN 55802

(218) 625-2337

5539 052109-01

Samples collected 5/21/2009

Customer ID:

Customer PO:

Received:

EMRI78

05/27/09 10:50 AM

EMSL Order:

270900145

EMSL Proj ID:

BNSF 2009 OSHA

**Cust COC ID** 

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900145	270900145-0001	P-RH052109		5/21/2009

Comments:
-----------

ANALYZED:	pm	Date:	6/2/09
Preliminary Data Sent to Special Projects:	RKM	Date:	6/2/09
Date Enery:		Date:	7 70 .
Sinucture Review:		Oate:	
Data Validation:		Date:	-
Reported to Officet:		Date:	

Micrographs:

Micrepraph Number	îy xe				
	Offraction or Morphology				
-					

5/28/2009 6:45:05 AM

Order ID: 270900145

Phone: (218) 625-2332

Attn:

Fax:

Project:

Scott Carney

EMR, Inc.

11 East Superior Street

Suite 260

Duluth, MN 55802

(218) 625-2337

5539 052109-01

Samples collected 5/21/2009

Customer ID:

Customer PO:

Received:

EMRI78

05/27/09 10:50 AM

EMSL Order:

270900145

BNSF 2009 OSHA

EMSL Proj ID: Cust COC ID

Order ID	Lab Sample #	Cust. Sample	e# Location		Due Date		
270900145	270900145-0002	P-KF052109			5/21/2009		
Comments:							
			ANALYZED:	pn	Date:	4/2/09	
		t	Preliminary Data Sent o Special Projects:	RICON	Date:	6/2/09	
ı			Data Entry:		Osta:		
			Houston Reviews		Oated		
		<del> </del>	Date Velidation:		Date:		
			Reported to Chent:	-	Daie:		
			Micrographs:	Nicober		Турю	
					Offracio	n er Morpheleg	

5/28/2009 6:45:05 AM

Order ID: 270900145

Attn:

Fax:

Project:

Scott Carney

EMR, Inc.

11 East Superior Street

Suite 260

Duluth, MN 55802

(218) 625-2337

5539 052109-01 Samples collected 5/21/2009

Phone: (218) 625-2332

EMSL Order:

Received:

Customer ID:

Customer PO:

270900145

EMRI78

EMSL Proj ID:

BNSF 2009 OSHA

05/27/09 10:50 AM

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900145	270900145-0003	P-JT052109		5/21/2009

Comments:			_
Comments.			

ANALYZED:	pm	Date:	4/2/09	
Preliminary Data Sent to Special Projects:	RKm	Date:	6/2/09	
Data Enery:		Date:		
Sinucture Review:		Date:		
Date Velidation:		Date:		
Reported to Olieni:		Date:		

Micrographs:

Micrograph Number	Type Offraction or Morphology

5/28/2009 6:45:05 AM

Order ID: 270900145

Attn:

Fax:

Project:

Scott Carney

EMR, Inc.

11 East Superior Street

Suite 260

Duluth, MN 55802

(218) 625-2337

5539 052109-01 Samples collected 5/21/2009

Phone: (218) 625-2332

EMSL Order:

Received:

EMSL Proj ID:

Customer ID:

Customer PO:

270900145

EMRI78

BNSF 2009 OSHA

05/27/09 10:50 AM

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900145	270900145-0004	P-LP052109		5/21/2009
Comments:				

ANALYZED:	my	Date:	6/2/09	
Preliminary Data Sent to Special Projects:	RKm	Date:	6/2/09	
Date Enery:		Date:	<u> </u>	
Sinucture Review:		Date:		
Date Velikiation:		Date:	-	
Reported to Chest:		Date:		

Micrographs:

Microgreph Number	Type Chifraction or Morphotopy
	Service Control of Control of Control

## INTERNAL CHAIN OF CUSTODY

5/28/2009 6:44:50 AM

Order ID: 270900145

Phone: (218) 625-2332

Attn:

Fax:

Project:

Scott Carney

EMR, Inc.

11 East Superior Street

Suite 260

Duluth, MN 55802

(218) 625-2337

5539 052109-01 Samples collected 5/21/2009 **Customer ID** 

Customer PO:

Received:

EMRI78

05/27/09 10:50 AM

EMSL Order:

270900145

EMSL Proj ID:

BNSF 2009 OSHA

**Cust COC ID** 

Test: TEM AHE	ERA (Indirect) <u>M</u>	atrix Air	TAT: 24 Hour Qt	<u>y:</u> 6
Acct Sts:	SIsprsn:	epodell	Logged: rmahoney Date Sample	<u>:</u> 5/28/2009
Samples Relinquished: Date Samples Received: Date Package Mailed to Westmont: Date		Comments		
Method of Delivery:  Includes: (Circle)  Benchsheets Sample Slides Sample filters Micrographs GridBox Other  Final Package Received: Date:		Initial Prep (Initials/Lab): pmy Filter Prep (Initials/Lab): pmy Grid Prep (Initials/Lab): pmy	Date: 5/27/09  Date: 6/1/09  Date: 4/1/09	
		OC Solo		Date:
Special Instruction	une		Date Package Mailed:	Date

Order ID	Lab Sample #	Cust. Sample # Location	Due Date
270900145	270900145-0001	P-RH052109 (RP) - RUP	5/21/2009
270900145	270900145-0002	P-KF052109	5/21/2009
270900145	270900145-0003	P-JT052109	5/21/2009
270900145	270900145-0004	P-LP052109	5/21/2009
270900145	270900145-0005	P-DW052109	5/21/2009
270900145	270900145-0006	P-DC052109	5/21/2009

2709-EMR-49(U) - RP

5/28/2009 6:45:05 AM

Order ID: 270900145

Phone: (218) 625-2332

Attn:

Fax:

Project:

Scott Carney

EMR, Inc.

11 East Superior Street

Suite 260

Duluth, MN 55802

(218) 625-2337

5539 052109-01

Samples collected 5/21/2009

Customer ID:

Customer PO:

Received:

EMRI78

05/27/09 10:50 AM

270900145

EMSL Order: EMSL Proj ID:

BNSF 2009 OSHA

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900145	270900145-0005	P-DW052109		5/21/2009
Comments:	2			

	<del>_</del>	 	
Comments:			Ì

ANALYZED:	pmy	Date:	4/2/19
Preliminary Data Sent to Special Projects:	RKM	Date:	6/2/09
Data Entry:		Date:	
Sinucture Review:		Detec	
Data Validation:		Date:	
Reported to Official:		Daie:	

Micrographs:

Micrograph Number			
	Offraction of Morphology		
-			

5/28/2009 6:45:05 AM

Order ID: 270900145

Attn:

Fax:

Project:

Scott Carney

EMR, Inc.

11 East Superior Street

Suite 260

Duluth, MN 55802

(218) 625-2337 5539 052109-01

Samples collected 5/21/2009

Phone: (218) 625-2332

EMSL Order:

Received:

EMSL Proj ID:

Customer ID:

Customer PO:

270900145

EMRI78

BNSF 2009 OSHA

05/27/09 10:50 AM

Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900145	270900145-0006	P-DC052109		5/21/2009

Comments:	

ANALYZED:	pm	Date:	6/2/19
Preliminary Data Sent to Special Projects:	Ricm	Date:	6/2/09
Date Entry:		Oste:	
Simpliane Reviews		Date:	
Data Validation:		Date:	· · · · · · · · · · · · · · · · · · ·
Reported to Olient:		Date:	

Micrographs:

Micrograph Number	Type
	Diffraction or Marginology

6/2/2009 9:08:46 AM

		Order ID: 270900145				
EI 11 St	cott Carney MR, Inc. 1 East Superior Street uite 260 uluth, MN 55802		Customer ID: Customer PO: Received:	EMRI78 05/27/09 10:50 AM		
Fax: (2 Project: 55		hone: (218) 625-2332	EMSL Order: EMSL Proj ID: Cust COC ID	270900145 BNSF 2009 OSHA		
rest: TEM	AHERA	<u>Matrix:</u> Air	IA	<u>AT:</u> 24 Hour		Qty: 1
Order ID	Lab Sample #	Cust. Sample #	Location		Due Date	
270900145	270900145-0007	B-BK052109			5/28/2009 AM	10:50:00
Comments						
Comments		ANALYZ Prelimina		any	Date:	6/2/09
Comments		Prelimina to Specia	ry Data Sent I Projects:	AN/ Kem	Date:	6/2/09
Comments		Prelimina to Specia	ry Data Sent Il Projects:	/ /	Date:	
Comments		Prelimina to Specia	ry Data Sent Il Projects:	/ /	Date:	
Comments		Prelimina to Specia	ry Data Sent I Projects:	/ /	Date:	
Comments		Prelimina to Specia	ry Data Sent Il Projects:	Kem	Date:	
Comments		Prelimina to Specia to to in the second seco	ry Data Sent	Kem	Date:	
Comments		Prelimina to Specia to to in the second seco	ry Data Sent	Kem	Date:	

**Test:** TEM AHERA (Indirect)

Matrix: Air

TAT: 24 Hour

**Qty:** 6



# Asbestos Chain of Custody EMSL Order Number (Lab Use Only):

5539 052109 -01

EMSL ANALYTICAL, INC. 107 HADDON AVENUE WESTMONT, NJ 08108

PHONE: (856) 858-4800 FAX: (856) 858-4960

270900145

	Company: E	MR		EMSL-Bill to: Same Different If Bill to is Different note instructions in Comments**					
		st Superior	St Soute 240						
	City: Duluth	State/P	Province: MN	Zip/Postal Code:		ountry: USA			
		Scott Carne		Fax #:	J5 802   CC	untry: USA			
	Telephone #: (2 (		<b>5</b>						
	Project Name/Number		9 OSHA /	Email Address: 5 5 3 9 . 1 3 0					
	Please Provide Resu	ults: 🗌 Fax 🖪 Emai		:	U.S. State Samples Ta	aken: MT			
			around Time (TAT)						
	3 Hours 6	Hours 24 Hrs	48 Hrs	☐ 3 Days [	☐ 4 Days ☐ 5 Da	ys 📗 10 Days			
	an authorization it	ours, please call ahead to schorm for this service. Analysis	edule. There is a premiul completed in accordance	m cnarge for 3 Hour TEI with EMSL's Terms an	M AHERA or EPA Level II TAT d Conditions located in the An	You will be asked to sign			
	PCM - Air		TEM - Air		TEM- Dust				
	☐ NIOSH 7400		AHERA 40 CFF	R, Part 763	☐ Microvac - AST	M D 5755			
	w/ OSHA 8hr. TW/		☐ NIOSH 7402		☐ Wipe - ASTM D				
	PLM - Bulk (reporting		☐ EPA Level II			on (EPA 600/J-93/167)			
	☐ PLM EPA 600/R-93	, ,	☐ ISO 10312		Soil/Rock/Vermic				
	☐ PLM EPA NOB (<1 Point Count	%)	TEM - Bulk			5 - A (0.25% sensitivity)			
	☐ 400 (<0.25%) ☐ 10	000 (<0 1%)	☐ TEM EPA NOB☐ NYS NOB 198.4	(non frieble NIV)		5 - B (0.1% sensitivity)			
	Point Count w/Gravime		☐ Chatfield SOP	(non-mable-in)		5 - B (0.1% sensitivity) 5 - C (0.01% sensitivity)			
	□ 400 (<0.25%) □ 10		☐ TEM Mass Anal	vsis-EPA 600 sec. 2					
	NYS 198.1 (friable	, ,	TEM - Water: EPA	·		☐ EPA Protocol (Quantitative)			
	☐ NYS 198.6 NOB (r	non-friable-NY)	Fibers >10µm						
	☐ NIOSH 9002 (<1%	s)	All Fiber Sizes						
1		☐ Check For P	ositive Stop – Cle	arly Identify Hom	nogenous Group	genous Group			
	Committee North A					-			
	Samplers Name: (	Michael Mck	ay	Samplers Signatu	1,101000	McKay			
	Sample #		Sample Description		Volume/Area (Air HA # (Buik)	) Date/Time Sampled			
Oh_s	0 0	~ **.		_		5121109			
OL 3	P-RH052109	Operator-Re	<u>x Hama-R</u>	ail Machin	e 1713	07:08-17:09			
DCBRKS	P-KF052169	Operator-Ke	ith Francis	Rail Mashin	e 1710	5(21109			
or →		•				5121109			
DEBAIS	P. JT 052109	Operator-Je	sus Tovar-R	ail Machine	1699	07:10-17:06			
OL CAN	P-LP 052109	Operator-L	eray Paulson	-Rail Mash	ne 1430	5121109			
0h -		_`	_			5/21/09			
C SEBAL	P.DW052109	Operator-D	Duane Willia	rus-Rail Mach	ine \1418	07:13-17:04			
· · ·	P-052109	Operator-D	avid Castro	- Rail Machi	ne 1493	5 21 69			
	0 01053106	•				5/21/09			
ŀ	B-BKOSZIO9	Field Blank	<u>- Opened</u>	N		3(2:101			
l									
[	Client Sample # (s):		•		Total # of Samples:	7			
	Relinquished (Client):	: Michael Mc	Va. Data: 4	5/23/09		ne: 10'.00			
	<u> </u>	V COUNTED THE		. 1					
ŀ	Received (Lab): K Comments/Special In:	M. Mahorey	Date:	5/27/09	Tim	ie: /050			
						-			
į									

## Indirect Preparation Record

TEM Air TEM Dust
(Circle One)

PCM

EFA <u>360</u> (mm2)

INDIRECT PREPARATION RECORD REVISION 1 FEBRUARY 9, 2009

		Indirect w	ithout ashing		Dilution Filtra	tion					Indirect w	ith Ashing		
Prepped by:	Date:	Fraction of filter used	1st Resuspend Volume	Volume applied to filter	Volume of 1st Resuspend used	2nd Re- suspend Volume	Volume applied to filter	Volume of 2nd Re- suspend used	3rd Re- suspend Volume	Volume applied to filter	Fraction of filter ashed	Volume used to resuspend residue	Volume applied to 2nd filter	OK to Prep to Grid?
Order ID	Sample #		mL	mL	mL	mL	mL	mL	mL	mL		mL	mL	Y/N
270900145	P-RHOSTIPO9	1	(00)	10	W									
				15										
				25										
				5U										У
	PKFOZZ109										1	100	10	
													15	у
													25	
													50	
	P-JOJUS										1	100	10	
													12	
													25	у
	_		-										<i>5</i> 0	
	per oszlog							· · · ·				100	10	
				VI									12	
												_ ,	25	у
													57)	,
<u> </u>	d Document								[					





PCM

EFA <u>360</u> (mm2)

INDIRECT PREPARATION RECORD REVISION 1 FEBRUARY 9, 2009

(Circle One)

		Indirect w	ithout ashing		Dilution Filtra	tion					Indirect w	ith Ashing		
Prepped by:	41109	Fraction of filter used	1st Resuspend Volume	Volume applied to filter	Volume of 1st Resuspend used	2nd Re- suspend Volume	Volume applied to filter	Volume of 2nd Re- suspend used	3rd Re- suspend Volume	Volume applied to filter	Fraction of filter ashed	Volume used to resuspend residue	Volume applied to 2nd filter	OK to Prep to Grid?
Order ID	Sample #		mL	mL	mL	mL	mL	mL.	mL	mL		mL	mL	Y/N
270900145	PDW052109										1	100	10	
													80	
					. 10	100	10							
							15							Y
							57_							,
							SS							
	POC052109		100	10										-
				12										
				25										У
				50										,
	FB										-	100	100	У
	AB										1	100	100	
	MB										-	100	160	<b>Y</b>
			·											•
														· · · · · · · · · · · · · · · · · · ·
			Sno	7										
			· ×	54/2										
·						·								



TEL: 406-293-9066 FAX: 406-293-7016

RE: Sample preparation for 270900145 (BNSF-EMR)

The following samples (P-KF052109, P-JT052109, P-LP052109 & P-DW052109) were processed in the described method (M2):

M2 (loose material)

- 1. Loose materials in cassette consolidated with overloaded filter were prepared for ashing.
- 2. Samples placed in LFE asher until filters have been completely ashed.
- 3. Ashed sample (AS) re-suspended in 100mL particle water.
- Fractions filtered (10, 15, 25 & 50mL) on 0.2μm filter backed by 5.0μm. Sample P-DW052109 was processed through second dilution.
- 5. Selected volume processed to grids.

The following samples (P-RH052109 & P-DC052109) were processed indirectly without ashing:

M3 (full filter used)

- 1. Sample re-suspended in 100mL particle water.
- 2. Fractions filtered (10, 15, 25 & 50mL) on 0.2µm filter backed by 5.0µm
- 3. Selected volume processed to grids.

Sample B-BK052109, was processed directly.

Please refer to SOP No.: EPA-LIBBY-08 for further information.





#### EMSL Analytical, Inc.

107 West 4th Street, Libby, MT 59923

Phone: (406) 293-9066 Fax: Email: mobileasbestoslab@emsl.com

Attn: Scott Carney

EMR, Inc.

11 East Superior Street

Samples collected 5/21/2009

Suite 260

**Duluth, MN 55802** 

Customer ID: Customer PO:

EMRI78

Received:

05/27/09 10:50 AM

EMSL Order:

270900145

er: 270900

Fax: Project: (218) 625-2337 **5539 052109-01** 

Phone: (218) 625-2332

EMSL Proj:

BNSF 2009 OSHA

Analysis Date:

6/2/2009

Sampling Date:

5/21/2009

# Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) Performed by AHERA -EPA 40 CFR Part 763 Appendix A to Subpart E (Modified for Indirect Prep)

Sample	Location	Volume (Liters)	Area Analyzed (mm²)	Non Asbestos Asb Type(s)	# Structures ≥ 0.5µ < 5µ ≥5µ	Analytical Sensitivity (S/cc)	Total A Concen (S/mm²)	sbestos stration (S/cc)
P-RH052109 270900145-0001		1713.00	0.0910	None Dete	ected	0.0046	<21.00	<0.0046
P-KF052109 270900145-0002		1710.00	0.1300	None Dete	ected	0.0110	<48.00	<0.0110
P-JT052109 270900145-0003		1699.00	0.1300	None Dete	ected	0.0065	<29.00	<0.0065
P-LP052109 270900145-0004		1430.00	0.1300	None Dete	ected	0.0077	<29.00	<0.0077
P-DW052109 270900145-0005		1418.00	0.1300	None Dete	ected	0.1300	<480.00	<0.1300
P-DC052109 270900145-0006		1493.00	0.1300	None Dete	ected	0.0074	<29.00	<0.0074

Analyst(s)

Roy Pescador (6)

R. K. Mahoney, Laboratory Manager or other approved signatory

This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. EMSL is not responsible for data reported in structures/cc, which is dependent on volume collected by non-laboratory personnel. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.



### EMSL Analytical, Inc. 107 West 4th Street, Libby, MT 59923

Phone: (406) 293-9066

Email: mobileasbestoslab@emsl.com

Attn: Scott Carney

EMR, Inc.

11 East Superior Street

Samples collected 5/21/2009

Suite 260

**Duluth, MN 55802** 

Customer ID:

EMRI78

Customer PO: Received:

05/27/09 10:50 AM

EMSL Order:

270900145

Fax: Project:

(218) 625-2337 5539 052109-01

Phone: (218) 625-2332

EMSL Proj:

BNSF 2009 OSHA

Analysis Date:

6/2/2009

Sampling Date:

5/21/2009

## Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) Performed by EPA 40 CFR Part 763 Appendix A to Subpart E

	A condition	Volume		Non	Asbestos	# Structur	es	Analytical Sensitivity	Asbes Concent	
Sample	Location	(Liters)	(mm²)	Asb	Type(s)	$\geq 0.5\mu < 5\mu$	≥5μ	(S/cc)	$(S/mm^2)$	(S/cc)
B-BK052109			0.1300	CONTRACTOR MEDICAL ROOM	None Dete	ected	***************************************		<7.70	
270900145-0007										
Field Blank										

Analyst(s)

Ron Mahoney (1)

R. K. Mahoney, Laberatory Manager or other approved signatory

Disclaimers: The laboratory is not responsible for data reported in structures/cc, which is dependent on volume collected by non-laboratory personnel. This lab is only responsible for data reported in structures/mm². This report may not be reproduced, except in full, without written approval by EMSL. This report must not be used to claim product endorsement by NVLAP or any agency of the U.S. Government. This report relates only to the samples reported above. Quality control data (including 95% confidence limits and laboratory and analysts' accuracy and precision) is available upon request. As per 40 CFR 763, the initial screening test may not be applied to samples with collected volumes of <1200 liters. The test results contained within this report meet the requirements of NELAC unless otherwise noted. Accredited for NVLAP PLM/TEM. NVLAP Libby code: 200745-0

Laboratory name:	EMSL27
Instrument	JEOL 100 CX JI (27-2)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L ≈	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

Structure

Type

Grid Opening

No. of Structures

EPA Sample Number:	P-24 052109
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1713
Date received by lab	5/27/2009
Lab Job Number:	270900145
Lab Sample Number:	270900145-000
Number of grids prepared	
Prepared by	
Preparation date	
EPA COC Number:	5539 052109-01
Secondary filter pore size (um)	0.2

Identification |

Analyzed by	
Analysis date	
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	AHERA
Grid storage location	
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

#### F-Factor Calculation (Indirect Preps Only): Enter data in appropriate cells provided to the right---->

Sketch/ Comments

Recording Rules.	
Minimum Aspect Ratio (circl	le one):
none ≥3:1	25:1)
Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:			
Target Sensitivity:	0.00	05	
Max # of GOs	4		
Target # of Structures:			

E factor	Calculation	
T-Jackui	Calculation	ł

Fract.

GO

Indired	t Prep Inputs
	Fraction of primary filter used for indirect prep or ashing
	[For dust and dustfall, enter 1.0]
	First resuspension volume or rinsat volume (mL)
	Volume applied to secondary filter

Inputs for 8	Serial Dilutions
	Second resuspension volume (mL
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

input for As	hing of Secondary Filter
	Fraction of secondary filter used for ashing

1 -1	. ivoe '	1	1	1	1	- acritinoution					- Sketch/Comments				1 00
 	Туре	Primary	Total	Length	Width		LA	OA	С	NAM	Chetery Comments	Sketch	Photo	EDS	GO Chrys.
	VER	LOA	020												
															<u> </u>
		_						ļ ——	<u> </u>				<del> </del>		
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1	ı		ı <b>I</b>		- 1		1				1				

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

Dimensions

C = Chrysotile

Mineral Class (see below)

NAM = Non-asbestos material

1 = yes, blank = no

Grid opening traverse direction (circle one):

H Horizontal

V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No If No, explain:


Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (27-2)
Vołtage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	
Scale: 1D =	100 (100 (100 (100 (100 (100 (100 (100
Primary fitter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	P-RH 052109
Sample Type (A=Air, D=Dust, DF = Dustfall):	А
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1713
Date received by lab	5/27/2009
Lab Job Number:	270900145
Lab Sample Number:	270900145-000
Number of grids prepared	3
Prepared by	R. Pescador
Preparation date	6/1/2009
EPA COC Number:	5539 052109-01
Secondary filter pore size (um)	0.2

Analyzed by	R Pescador
Analysis date	6/ <b>2</b> /2009
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	AHERA
Grid storage location	2709-EMR-49,
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

#### F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right---->

Recording Rules:	
Minimum Aspect Ratio (circ	e one):
none ≥3:1	<b>(5)</b>
Minimum Length (um):	0.5
Minimum Width (um)	None

Stopping Rules:	
Target Sensitivity:	0.005
Max # of GOs:	
Target # of Structures	

#### F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for S	Serial Dilutions
	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter
Fraction of secondary filter used for ashing

Grid	Grid Opening	Structure	No. of St	ructures	Dimensions Identification		Mir	Mineral Class (see below)		Mineral Class (see below)			0.4440	1 = ye	Fract.	
		Туре	Primary	Total	Length	Width	rac/itinodilor)	LA	OA	С	NAM	Sketch/ Comments	Sketch	Photo	EDS	GO Chrys.
1	66	ND														
	G4	ND														
	GZ	ND														
2	G3	ND														
	G5	ND														
	77	ND										-				
	UD	Νb								-						
			Son													
				4400												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal

(V) Vertical

Are prepped grids acceptable for analysis? (circle one	) (
If No, explain:	



0.5

None

## BNSF 2009 OSHA TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (27-2)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0,013
Scale: 1L =	
Scale: 1D=	
Primary fitter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	P-KF 052109				
Sample Type (A=Air, D=Dust, DF = Dustfall):	A				
Air volume (L), dust area (cm2), or dustfall container area (cm2)	טורן				
Date received by lab	5/27/2009				
Lab Job Number:	270900145				
Lab Sample Number:	270900145-000 <b>2</b>				
Number of grids prepared					
Prepared by					
Preparation date					
EPA COC Number:	5539 052109-01				
Secondary filter pore size (um)	0.2				

Analyzed by	
Analysis date	
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
if sample type = air, is there loose material or debris in the cowl? (Yes, No)	Ves
Counting rules (ISO, AHERA, ASTM)	AHERA
Grid storage location	
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

Stopping Rules	
Target Sensitivity:	0.005
Aax # of GOs:	0.005

Recording Rules:

none

Minimum Length (um):

Minimum Width (um):

Minimum Aspect Ratio (circle one):

≥ 3:1

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right---->

Grid	Grid Opening	Structure	No. of St	ructures	Dimei	nsions	Identification	Mir	neral Class	(see belo	w)	Stratab/Community	1 = ye	s, blank	= no	Frac
	, i	туре	Primary	Total	Length	Width		LA	OA	С	NAM	Sketch/ Comments	Sketch	Photo	EDS	GC Chry
		018	RIC	DAD:	ED											
		۷	RLC OSE	M	ATE	RIA	し									
		_													<u>-</u>	
																ļ
Au																
				_	ĺ	- 1		1			ľ		į	- 1	Ì	

ndirect Pre	un linnudo
	Fraction of primary fitter used for
	indirect prep or ashing

indirect prep or ashing
[For dust and dusfall, enter 1.0]
First resuspension volume or rinsate
volume (mL)

Volume applied to secondary filter
(mL) or used for serial dilution

Inputs for Serial Dilutions

F-factor Calculation:

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter
Fraction of secondary filter used for ashing

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal

V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No If No, explain:

0.5

None

#### BNSF 2009 OSHA TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (27-2)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0,013
Scale: 1L ≈	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

<b>504.6</b>					
EPA Sample Number:	P-KF 052109				
Sample Type (A=Air, D=Dust, DF = Dustfall):	A				
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1710				
Date received by lab	5/27/2009				
Lab Job Number:	270900145				
Lab Sample Number:	270900145-0002				
Number of grids prepared	3				
Prepared by	R. Pescador				
Preparation date	6/1/2009				
EPA COC Number:	5539 052109-01				
Secondary filter pore size (um)	0.2				

Analyzed by	R. Pescador
Analysis date	6/ 2 /2009
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	IA
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	YES
Counting rules (ISO, AHERA, ASTM)	AHERA
Grid storage location	2709-EMR-49,
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

Stopping Rules: Target Sensitivity: 0.005 Max # of GOs: 10 Target # of Structures:

#### F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right---->

Grid Grid Openin		Structure	No. of Structures		Dimensions		Identification	Mineral Class (see below)					1 = yes, blank = no			Fract.
		Туре	Primary	Total	Length	Width	ideritindation	LA	OA	С	NAM	Sketch/ Comments	Sketch	Photo	EDS	GO Chrys
	<b>C9</b>	ND														
	07	29						·							····	
	cs	ND														
	C3	4													<del></del>	
	CI	ND														
<u> </u>	D9	ND					-									
	<b>D</b> 7	ND														ļ
-	<b>D</b> 5	ND														
	D3	ND														
	DI	40		· · · · · · · · · · · · · · · · · · ·												

indirect Pro	ep inputs
1.0	Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
	First management

First resuspension volume or rinsate 100 volume (mL) Volume applied to secondary filter (mL) or used for serial dilution

#### Inputs for Serial Dilutions

F-factor Calculation:

Recording Rules:

none

Minimum Length (um):

Minimum Width (um):

Minimum Aspect Ratio (circle one):

≥ 3:1

Second resuspension volume (mL) Volume applied to secondary filter (mL) or used for serial dilution Third resuspension volume (mL) Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter Fraction of secondary filter used for ashing

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal (V) Vertical

Are prepped grids acceptable for analysis? (circle one) (Yes) No If No, explain:



Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (27-2)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0,013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary fitter pore size (um)	0.8

EPA Sample Number:	P-JT 052109
Sample Type (A=Air, D=Dust, DF = Dustfall):	Α
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1699
Date received by lab	5/27/2009
Lab Job Number:	270900145
Lab Sample Number:	270900145-000
Number of grids prepared	
Prepared by	
Preparation date	
EPA COC Number:	5539 052109-01
Secondary filter pore size (um)	0.2

Analyzed by	
Analysis date	
Method (D=Direct, I≃Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	YES
Counting rules (ISO, AHERA, ASTM)	AHERA
Grid storage location	
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right---->

Minimum Aspect Ratio (circ	le one):
none ≥ 3:1	(≥5)
Minimum Length (um)	0.5
Minimum Width (um):	None

Target Sensitivity:	0.005
Max # of GOs: Target # of Structures:	4

Grid	Grid Opening	Structure	No. of St	tructures	Dime	nsions	Identification	Mi	neral Class	(see belo	w)	81-4-4-6	1 = ye	s, blank	= no	Fract.
	J	Туре	Primary	Total	Length	Width	i de i i i i de i i i i i i i i i i i i	LA	OA	С	NAM	Sketch/ Comments	Sketch	Photo	EDS	GO Chrys.
		0	ERL	047	ED											
		LC	ERL	MA	TEI	21X	L									
															· · · · · · · · · · · · · · · · · · ·	
				<u> </u>												
							İ							1		

-factor	Calculation:
---------	--------------

Indirect Prep Inputs
Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]
First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for S	Serial Dilutions
	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter
Fraction of secondary filter used for ashing

LA = Libby-type	amphibole
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OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal

V Vertical

Are prepped grids acceptable for analysis?	(circle one)	Yes	No
If No, explain:			

€ 5.1

0.5

None

#### **BNSF 2009 OSHA** TEM Asbestos Structure Count

	·
Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (27-2)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	<b>.</b>
Scale: 1D =	1
Primary filter area (mm2)	315
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	P-JT052109
Sample Type (A=Air, D=Dust, DF = Dustfall):	А
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1699
Date received by lab	5/27/2009
Lab Job Number:	270900145
Lab Sample Number:	270900145-000
Number of grids prepared	3
Prepared by	R. Pescador
Preparation date	6/1/2009
EPA COC Number:	5539 052109-01
Secondary filter pore size (um)	0.2

Analyzed by	R Pescador
Analysis date	6/ <b>2</b> -/2009
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	IA
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	YES
Counting rules (ISO, AHERA, ASTM)	AHERA
Grid storage location	2709-EMR-49,
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

Stopping Rules: Target Sensitivity: 0.005 Max # of GOs: 10 Target # of Structures:

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right---->

Grid Grid Opening	Grid Grid Opening	ening Structure		No. of Structures		Dimensions		Identification	Mir	neral Class	(see belo	w)		1 = yes, blank = no			Fract.
·			Туре	Primary	Total	Length	Width	ide/ilinoation/	LA	OA	С	NAM	Sketch/ Comments	Sketch	Photo	EDS	GO Chrys
1	G2	ND															
	GU	ND															
	GG	ND															
-,	G8	ND															
	G10	ND															
ı	D9	ND															
W1	77	ND	-							**							
	DS	ND															
	D3	ND											1				
	D1	ND															

F-factor Calculation:

Indirect Prep Inputs

Recording Rules:

none

Minimum Length (um):

Minimum Width (um):

Minimum Aspect Ratio (circle one):

≥ 3:1

Fraction of primary filter used for 1.0 indirect prep or ashing [For dust and dustfall, enter 1.0] First resuspension volume or rinsate 100 volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

inputs for Serial Dilutions

Second resuspension volume (mL) Volume applied to secondary fitter (mL) or used for serial dilution Third resuspension volume (mL) Volume applied to secondary filter (mL)

nput for Ashing of Secondary Filter Fraction of secondary filter used for ashing

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal ✓ Vertical

Are prepped grids acceptable for analysis? (circle one) 8 No If No, explain:



Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (27-2)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D ≃	
Primary fitter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	P-1 052109
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1430
Date received by lab	5/27/2009
Lab Job Number:	270900145
Lab Sample Number:	270900145-000 <b>4</b>
Number of grids prepared	
Prepared by	
Preparation date	
EPA COC Number:	5539 052109-01
Secondary filter pore size (um)	0.2

D
yes
AHERA
Westmont
Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right---->

Minimum Aspect	Ratio (circl	e one):
hone	≥ 3;1	25.1
Minimum Length	(um):	0.5
Minimum Width (	im):	None

Stopping Rules	
Target Sensitivity:	0.005
Max # of GOs:	S
Target # of Structures:	

F-factor	Calculation:

Indirect Prep Inputs
Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]
First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter

(mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter
Fraction of secondary filter used for ashing

Grid Grid Opening		Structure	740. 01 31	740. Of Structures		Differences		Milleral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract.
		Туре	Primary	Total	Length	Width	Identification	LA	OA	С	NAM	Sketch Confinerts	Sketch	Photo	EDS	GO Chrys.
		OVE	RLC	ADI	₹D		3									
		OVE LO	OSE	MAT	ERIZ	كرك										
<u> </u>																

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal

V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No If No, explain:

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (27-2)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	7.85
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	P-LP 052109
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1436
Date received by lab	5/27/2009
Lab Job Number:	270900145
Lab Sample Number:	270900145-000 <b>4</b>
Number of grids prepared	3
Prepared by	R. Pescador
Preparation date	6/1/2009
EPA COC Number:	5539 052109-01
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador	
Analysis date	6/ <b>2</b> /2009	
Method (D=Direct, I=Indirect, IA=Indirect, ashed)		
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	VES	
Counting rules (ISO, AHERA, ASTM)	AHERA	
Grid storage location	2709-EMR-49,	2709-EUR- MC-50, H
Archive filter(s) storage location	Westmont	
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA	
, , , , , , , , , , , , , , , , , , , ,		

Recording Rules: Minimum Aspect Ratio (circle one): none ≥ 3:1 (≥5:1) Minimum Length (um): 0.5 Minimum Width (um): None

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right---->

Stopping Rules:	
Target Sensitivity:	0.005
Max # of GOs:	10
Target # of Structures:	

		[	No. of St		Dime		Υ									
Grid	Grid Opening	Structure Type	140. 07 50	ructures	Dime	nsions	Identification	Identification Mi		(see belo	w)	Sketch/ Comments	1 = yes, blank = no			Fract.
	ļ	туре	Primary	Total	Length	Width		LA	OA	С	NAM	ORECOM COMMITTERES	Sketch	Photo	EDS	GO Chrys.
2	F9	No														
	<del>F</del> 7	ND									-					
	<b>F</b> 5	ND									· · · · · · · · · · · · · · · · · · ·					
	F3	ND									_					
	FI	ND														
3	BT	ND														
	B3	ND							74.00							
	BI	ND														
	F4	ND						:			-					
	F2	ND														<del></del>

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0] First resuspension volume or rinsate 100 volume (mL) Volume applied to secondary filter 25 (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL) Volume applied to secondary filter (mL) or used for serial dilution Third resuspension volume (mL) Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter Fraction of secondary filter used for ashing

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one): H Horizontai

(V) Vertical

Are prepped grids acceptable for analysis? (circle one) If No, explain:



(≥5:1

0.5

None

#### BNSF 2009 OSHA **TEM Asbestos Structure Count**

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (27-2)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	
Scale: 1D =	
Primary fitter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary fitter pore size (um)	0.8

EPA Sample Number:	P-M 052109					
Sample Type (A=Air, D=Dust, DF = Dustfall):	Α					
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1418					
Date received by lab	5/27/2009					
Lab Job Number:	270900145					
Lab Sample Number:	270900145-000					
Number of grids prepared						
Prepared by						
Preparation date						
EPA COC Number:	5539 052109-01					
Secondary filter pore size (um)	0.2					

D
es .
HERA
estmont
lot QA

titatina tila eti	 	1.17	7	100	17 7.	
ng Rules:						
Sensitivity				0.1	205	

Recording Rules:

none

Minimum Length (um):

Minimum Width (um):

Minimum Aspect Ratio (circle one):

≥ 3:1

F-Factor Calculation (Indirect Preps Only):

m)		0	8	j	Seconda	ry filter po	ore size (um)	C	).2	]	Enter	data in appropriate ce	lls provided	to the rig	ht>		Target # of Str			
Grid	Grid Opening	Structure	No. of St	ructures	Dime	Dimensions Identificat		mensions Identification		Mineral Class (see below)			Sketch/ Comments		1 = yes, blank = no			Fract.	F-factor Calcul	
********		Туре	Primary	Total	Length	Width		LA	OA	С	NAM	Onctors Comments	Sketch	Photo	EDS	GO Chrys.	Indirect Prep Ir			
		0 Y E	RLO	ADE	D												Frac			
		LO	DSE	MA	TERI	ΔL											[For First volu			
																	Voit (mL			
																	Inputs for Seria			
													<u></u> -				Sec			
													<del></del>				Volu (mL)			
																	Thire			
···········				-													Volu (mL)			
																	Input for Ashing			
																	Frac ashi			

Indirect Pre	p Inputs
	Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
	[For dust and dustfall, enter 1.0]
	First resuspension volume or ringet

volume (mL) Volume applied to secondary filter (mL) or used for serial dilution

Second resuspension volume (mL) Volume applied to secondary filter (mL) or used for serial dilution Third resuspension volume (mL) Volume applied to secondary filter

Input for Ashing of Secondary Filter Fraction of secondary filter used for

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontai

Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No If No, explain:

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (27-2)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	785
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	P-DW 052109
Sample Type (A=Air, D=Dust, DF = Dustfall):	А
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1418
Date received by lab	5/27/2009
Lab Job Number:	270900145
Lab Sample Number:	270900145-000\$
Number of grids prepared	3
Prepared by	R. Pescador
Preparation date	6/1/2009
EPA COC Number:	5539 052109-01
Secondary filter pore size (um)	0.2

R. Pescador
6/ 2 /2009
IA
YES
AHERA
2709-EMR-49,
Westmont
Not QA

Recording Rules: Minimum Aspect Ratio (circle one): none ≥ 3:1 **(≥**5:1) Minimum Length (um): 0.5 Minimum Width (um): None 2709- EMA ALC-50, H

> Stopping Rules: Target Sensitivity: 0.005 Max # of GOs: 10 Target # of Structures:

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right---->

Grid	Grid Opening	Structure	No. of St	ructures	Dimer	nsions	Identification	Mir	neral Class	(see belo	<b>w</b> )	Sketch/ Comments	1 = y	es, blank	= no	Fract.
		Туре	Primary	Total	Length	Width	identification	LA	OA	С	NAM	Sketch/ Comments	Sketch	Photo	EDS	GO Chrys
2	HI	ND	-													
	43	No														
	HS	NO														
	H7	No														
	49	ND						-				· · · · · · · · · · · · · · · · · · ·				
3	G9	20						***************************************								
	67	ND														
	G5	ND														
	G3	2														
	GI	ND		-												

F-factor	Calcu	datio
r-Jacioi	Calcu	IIalio

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0] First resuspension volume or rinsate 100 volume (mL) Volume applied to secondary filter 10

(mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL) 100 Volume applied to secondary filter 15 (mL) or used for serial dilution Third resuspension volume (mL) Volume applied to secondary filter

Input for Ashing of Secondary Filter Fraction of secondary filter used for ashing

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal ∇ertical

Are prepped grids acceptable for analysis? (circle one) If No, explain:



**€** 5:1

0.5

None

#### BNSF 2009 OSHA **TEM Asbestos Structure Count**

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (27-2)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L ≂	
Scale: 1D =	
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	P-DC 052109
Sample Type (A=Air, D=Dust, DF = Dustfall):	Α
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1493
Date received by lab	5/27/2009
Lab Job Number:	270900145
Lab Sample Number:	270900145-0006
Number of grids prepared	
Prepared by	
Preparation date	
EPA COC Number:	5539 052109-01
Secondary filter pore size (um)	0.2

Analyzed by	
Analysis date	
Method (D=Direct, I≃Indirect, IA=Indirect, ashed)	В
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	AHERA
Grid storage location	
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

Stopping Rules: Target Sensitivity: 0.005 Max # of GOs. Target # of Structures:

Recording Rules:

none

Minimum Length (um):

Minimum Width (um).

Minimum Aspect Ratio (circle one):

≥ 3:1

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right---->

				<del></del>					j							
Grid Opening	Structure		No. of St	ructures	Dime	nsions	Identification	Mit	neral Class	(see belo	w)	Shetah ( Carran )	1 = ye	s, blank	= no	Fract.
	Туре	Primary	Total	Length Width	idel killodkori	LA	OA	С	NAM	Sketch/ Comments	Sketch	Photo	EDS	GO Chrys.		
	GYE	RLOA	DED													
															<del></del>	
					-											
-																
	-															
		Туре Туре	Grid Opening Type Primary	Type Primary Total	Grid Opening Tyree	Grid Opening Type Primary Total Length Width	Grid Opening Type Primary Total Length Width	Grid Opening Structure No. of Structures Dimensions Identification No. of Structures Primary Total Length Width	Grid Opening Structure Type No. of Structures Dimensions Identification LA OA	Grid Opening Type Primary Total Length Width Identification LA OA C  OVERLOADED	Grid Opening Structure Type No. of Structures Dimensions Primary Total Length Width Hentification LA OA C NAM  OVERUADED HONGON HENTIFICATION OF STRUCTURES DIMENSIONS HENTIFICATION OF STRUCTURES DIMENSION rid Opening Structure Type No. of Structures Dimensions Primary Total Length Width LA OA C NAM  OVERUADED Sketch/ Comments	Grid Opening Structure Type No. of Structures Dimensions Primary Total Length Width LA OA C NAM Sketch/Comments Sketch  OVERUOADED Sketch	Grid Opening Structure Type No. of Structures Dimensions Primary Total Length Width LA OA C NAM Sketch/ Comments Sketch Photo			

direct	Prep Inputs
	Fraction of primary filter
	indirect prop or sehing

F-factor Calculation:

used for [For dust and dustfall, enter 1.0] First resuspension volume or rinsate volume (mL) Volume applied to secondary fitter

(mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL) Volume applied to secondary filter (mL) or used for serial dilution Third resuspension volume (mL) Volume applied to secondary filter

Input for Ashing of Secondary Filter Fraction of secondary filter used for ashing

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

Horizontal

Vertical

Are prepped grids acceptable for analysis? (circle one) if No, explain:

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (27-2)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D=	
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	P-2 052109
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1493
Date received by lab	5/27/2009
Lab Job Number:	270900145
Lab Sample Number:	270900145-000 <b>८</b>
Number of grids prepared	3
Prepared by	R. Pescador
Preparation date	6/1/2009
EPA COC Number:	5539 052109-01
Secondary filter pore size (um)	0.2

Analyzed by	R Pescador	1
Analysis date	6/ 2 /2009	
Method (D=Direct, I=Indirect, IA=Indirect, ashed)		
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No	
Counting rules (ISO, AHERA, ASTM)	AHERA	
Grid storage location	2709-EMR-49,	2709-EMR-
Archive filter(s) storage location	Westmont	
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA	

Recording Rules: Minimum Aspect Ratio (circle one): none ≥ 3:1 Minimum Length (um): 0.5 Minimum Width (um): None 2709-EMR-

> Stopping Rules: Target Sensitivity: 0.005 Max # of GOs: Target # of Structures:

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right---->

Grid	Grid Opening	Structure	No. of St	ructures	Dime	nsions	Identification	Mi	neral Class	(see beid	ow)	Sketch/ Comments	1 = ye	es, blank	= no	Fract.	F-factor (	Calculation:
		Туре	Primary	Total	Length	Width	Identification	LA	OA	С	NAM	Sketch/ Comments	Sketch	Photo	EDS	GO Chrys.		
1	IJ	25													****		1,0	Prep Inputs Fraction of primary filter used for indirect prep or ashing
	14	ND															100	[For dust and dustfall, enter 1.0]  First resuspension volume or rinsate volume (mL)
	J6	40														2	5 267	Volume applied to secondary filter (mL) or used for serial dilution
	I8	No														P 214	a bus	ている Serial Dilutions
3	+12	NO															,,,pd.c.,ic.	Second resuspension volume (mL)
	+4	No																Volume applied to secondary filter (mL) or used for serial dilution
	46	No																Third resuspension volume (mL)
	Hg	No																Volume applied to secondary filter (mL)
	<b>F</b> 6	ND															Input for	
	F8	NO															input ioi /	Fraction of secondary filter used for ashing

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

Horizontal

Are prepped grids acceptable for analysis? (circle one) (Yes) No If No, explain:



**(≥**5:1)

0.5

None

## BNSF 2009 OSHA TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (27-2)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	<b>1</b>
Scale: 1D ≃	
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Blank
Primary filter pore size (um)	0.8

EPA Sample Number:	3-8K052109
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	0
Date received by lab	5/27/2009
Lab Job Number:	270900145
Lab Sample Number:	270900145-000 <b>7</b>
Number of grids prepared	3
Prepared by	R Pescador
Preparation date	6/1/2009
EPA COC Number:	5539 052109-01
Secondary filter pore size (um)	0.2

R. Pescador
6/ 2/2009
D
No
AHERA
2709-EMR-49,
Westmont
Not QA

Stopping Rules:
Target Sensitivity:

Max # of GOs:

Target # of Structures:

Recording Rules:

none

Minimum Length (um):

Minimum Width (um):

Minimum Aspect Ratio (circle one):

≥ 3:1

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right---->

Grid	Grid Opening	Structure	No. of St	No. of Structures		nsions	Identification	Mineral Class (see below)			Statut Community	1 = yes, blank = no			Fract.	F-factor Calculation:	
	J. J. J. J. J. J. J. J. J. J. J. J. J. J	Туре	Primary	Total	Length	Width	Identification	LA	OA	С	NAM	Sketch/ Comments	Sketch	Photo	EDS	GO Chrys.	Indirect Prep Inputs
ı	II	ND															Fraction of primary filter used indirect prep or ashing
	I3	NS		~r													[For dust and dustfall, enter 1. First resuspension volume or volume (mL)
	IL	ND															Volume applied to secondary (mL) or used for serial dilution
	17	ND															Inputs for Serial Dilutions
	<b>19</b>	ND															Second resuspension volume
۷	CIB	ND															Volume applied to secondary (mL) or used for serial dilution
	<b>C8</b>	ND															Third resuspension volume (m
	4	MD															Volume applied to secondary (mL)
	<b>C4</b>	とり															Input for Ashing of Secondary Filter
	a	ND															Fraction of secondary filter use

NAM = Non-asbestos material

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

Grid opening traverse direction (circle one):

H Horizontal

Vertical

Are prepped grids acceptable for analysis? (circle one) (if No, explain:



No

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (27-2)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0,013
Scale: 1L =	1
Scale: 1D =	
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Blank
Primary filter pore size (um)	0.8

EPA Sample Number:	
Sample Type (A=Air, D=Dust, DF = Dustfail):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	
Date received by lab	
Lab Job Number:	270900145
Lab Sample Number:	270900145
Number of grids prepared	2
Prepared by	R. Pescador
Preparation date	6/1/2009
EPA COC Number:	5539 052109-01
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	6/ 2 /2009
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	IA
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	
Counting rules (ISO, AHERA, ASTM)	AHERA
Grid storage location	2709-EMR-49,
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Lab Blank

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right---->

Recording Rules:	
Minimum Aspect Ratio (	circle one);
none ≥ 3:1	25:1
Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules	
Target Sensitivity:	
Max # of GOs:	10
Target # of Structures:	

#### F-factor Calculation:

Indirect Pre	ep Inputs
1	Fraction of primary filter used for indirect prep or ashing [For dust and dustfell, enter 1.0]
	First resuspension volume or rinsat volume (mL)
100	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for S	Serial Dilutions
	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter Fraction of secondary filter used for

Grid	Grid Opening	Structure	No. of Structures		Dimensions			Mir	neral Class	(see belo	w)	Sketch ( Community	1 = yes, blank = no			Fract.
	,	Туре	Primary	Total	Length	Width	IGC/RINGALIO//	LA	OA	С	NAM	Sketch/ Comments	Sketch	Photo	EDS	GO Chrys.
,	09	ND														
	רס	No														
	DS	No														
	D3	NO						-								
	ÞI	No														
2	GZ	ND														
	G4	ND														
	66	ND														
	G8	ND											-			
	G10	ND														

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal

✓ Vertical

Are prepped grids acceptable for analysis? (circle one) No If No, explain:



€ 5:1)

0,5

None

#### **BNSF 2009 OSHA TEM Asbestos Structure Count**



Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (27-2)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0,α3
Scale: 1L =	1
Scale: 1D=	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	P-RH 052109
Sample Type (A=Air, D=Dust, DF = Dustfail):	А
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1713
Date received by lab	5/27/2009
Lab Job Number:	270900145
Lab Sample Number:	270900145-0001
Number of grids prepared	
Prepared by	
Preparation date	
EPA COC Number:	5539 052109-01
Secondary filter pore size (um)	0.2

Analyzed by	
Analysis date	
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	
Counting rules (ISO, AHERA, ASTM)	AHERA
Grid storage location	2709-EMR-49,
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interiab)	Re-prep
	ŀ

Stopping Rules:		
Target Sensitivity:	0.005	;
Max # of GOs:	*	
Target # of Structures:		

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right---->

F-fa	Fract. GO	= no	es, blank =	1 = ye	Sketch/ Comments	w)	(see belo	eral Class	Min	Identification	nsions	Dimer	ructures	No. of Sti	Structure	Grid Opening	Grid
Indir	Chrys.	EDS	Photo	Sketch	Sketch Comments	NAM	С	OA	LA	Tab/killoution)	Width	Length	Total	Primary	Туре		
											>	DEI	OA	1513	OV		
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	ctor	$\sim$		-4:-	
ra	CIDI	L al	Cit	анс	רונ

Recording Rules:

none

Minimum Length (um):

Minimum Width (um):

Minimum Aspect Ratio (circle one):

≥.3:1

nputs action of primary filter used for direct prep or ashing or dust and dustfall, enter 1.0] st resuspension volume or rinsate lume (mL)

> lume applied to secondary filter L) or used for serial dilution

ial Dilutions

cond resuspension volume (mL)

lume applied to secondary filter L) or used for serial dilution

ird resuspension volume (mL)

lume applied to secondary filter

ng of Secondary Filter

action of secondary filter used for

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

Horizontal

V Vertical

Are prepped grids acceptable for analysis?	(circle one)	Yes	No
If No, explain:			

(≥ 5:1 )

0.5

None



#### BNSF 2009 OSHA TEM Asbestos Structure Count

	····
Laboratory name:	EMSL27
instrument	JEOL 100 CX II (27-2)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L=	<b>1</b>
Scale: 1D =	4
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	P-R4 052109
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1713
Date received by lab	5/27/2009
Lab Job Number:	270900145
Lab Sample Number:	270900145-0001
Number of grids prepared	3
Prepared by	R. Pescador
Preparation date	6/1/2009
EPA COC Number:	5539 052109-01
Secondary filter pore size (um)	0.2

R. Pescador
6/ 2/2009
NO
AHERA
2709-EMR-49,
Westmont
Re-prep

Stopping Rules: Target Sensitivity: 0.005 Max # of GOs: Target # of Structures:

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right---->

	1				· · · · · · · · · · · · · · · · · · ·											
Grid	Grid Opening	Structure	No. of Structures		Dimensions		Identification	Mir	neral Class	(see belo	w)	Sketch/ Comments	1 = yes, blank = no			Fract.
		Туре	Primary	Total	Length	Width	ide italioation	LA	OA	C	NAM	Sketch/ Comments	Sketch	Photo	EDS	GO Chrys.
2	I2	ND														
	<b>I</b> 4	N														
	16	V))														
3	D8	ND														
	DC	1/0								****						
	74	NV														
	DZ	NO														
		An	Ver.								""			-		
			4409													

-facto	r Calcu	lation

Recording Rules:

none

Minimum Length (um):

Minimum Width (um):

Minimum Aspect Ratio (circle one):

≥ 3:1

Indirect Prep Inputs Fraction of primary filter used for indirect prep or ashing (For dust and dustfall, enter 1.0) First resuspension volume or rinsate 100 volume (mL) Volume applied to secondary filter 50 (mL) or used for serial dilution

Inputs for S	Serial Dilutions
	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter Fraction of secondary filter used for

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one): Horizontal

Are prepped grids acceptable for analysis? (circle one) Yes No If No, explain:



#### **INTERNAL CHAIN OF CUSTODY**

5/29/2009 2:11:50 PM

Order ID: 270900146

Attn:

Fax:

Project:

Scott Carney

EMR, Inc.

11 East Superior Street Suite 260

Duluth, MN 55802

(218) 625-2337

5539 052209-01 Samples collected 5/22/2009

Phone: (218) 625-2332

EMSL Order:

Customer ID

Received:

Customer PO:

270900146

EMRI78

EMSL Proj ID:

BNSF 2009 OSHA

05/27/09 10:50 PM

**Cust COC ID** 

Test:	TEM AHE	RA <u>M</u> :	atrix Air	TAT: 24 Hour	<b>Qty:</b> 4
Acct Sts:	: ab Sample Tr	Sisprsn:	epodell	Logged: rmahoney Danie	ate: 5/28/2009
Sampl	les Relinq	uished:	Date	Comments	
Sampl	les Receiv	red:	Date		
Packa	Package Mailed to Westmont: Date				
Metho	d of Deliv	ery:		Initial Prep (Initials/Lab): KMS	Date: 6 1 09
Includ	des: (Circl	e)		Filter Prep (Initials/Lab): 🖔	<u>Date: ψ]ι[0</u> 9
	sheets	Sample Slides	Sample filters	Grid Prep (Initials/Lab): K/O	Date: 6/1/09
Microg	crographs GridBox	•	Other	For Stan at Projects The Cary	
Final Package Received: Date:		Data	QC Selection	Date:	
		Date Packago Review:	Date		
				Date Package Mailed:	Date:

## **Special Instructions**

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900146	270900146-0001	PJT052209		5/28/2009 10:50:00 PM
270900146	270900146-0003	PRH052209		5/28/2009 10:50:00 PM
270900146	270900146-0006	PLP052209		5/28/2009 10:50:00 PM
270900146	270900146-0007	BBK052209		5/28/2009 10:50:00 PM

2709-EMR-49 (M-P) 2709-EMR-50 (F-G)

#### INTERNAL CHAIN OF CUSTODY

5/29/2009 8:35:55 AM

Order ID: 270900146

Attn: **Scott Carney** 

Fax:

Project:

EMR, Inc.

11 East Superior Street

Suite 260

Duluth, MN 55802

(218) 625-2337

Phone: (218) 625-2332

5539 052209-01 Samples collected 5/22/2009

EMSL Order:

Customer ID

Received:

Customer PO:

270900146

EMRI78

EMSL Proj ID:

BNSF 2009 OSHA

05/27/09 10:50 PM

**Cust COC ID** 

Test: TEM AHE	RA (Indirect) <u>M</u> a	atrix Air	<u>TAT:</u> 24 Hour <u>Qty:</u> 3
Acct Sts:	Slsprsn:	epodell	Logged: rmahoney Date: 5/28/2009
Inter- Lab Sample Tra	ansfer		Sample
Samples Relinq	uished:	Date	Comments
Samples Receiv	red:	Date	
Package Mailed to Westmont: Date		Date	
Method of Deliv	Method of Delivery:		Initial Prep (Initials/Lab): LB Date: 5/2/04
Includes: (Circle	e)		Filter Prep (Initials/Lab): Date: 4/1/09
Benchsheets	Sample Slides	Sample filters	Grid Prep (Initials/Lab): KN3 Date:6/1109
Micrographs	GridBox	Other	For Special Projects Use Only:
Final Package Received: Date:		<b>D</b> 4	QC Selection: Date:
		Date:	Date Package Review: Date:
			Date Package Mailed: Date:

#### **Special Instructions**

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900146	270900146-0002	PDC052209 10 n/L		5/22/2009
270900146	270900146-0004	PDW052209 10 mg		5/22/2009
270900146	270900146-0005	PKF052209 15 M	<b>L</b>	5/22/2009

5/29/2009 8:37:01 AM

Order ID: 270900146

Phone: (218) 625-2332

Attn:

Fax:

Project:

Scott Carney

EMR, Inc.

11 East Superior Street

Suite 260

Duluth, MN 55802

(218) 625-2337

5539 052209-01

Samples collected 5/22/2009

Customer ID:

Customer PO:

Received:

05/27/09 10:50 PM

EMRI78

EMSL Order: EMSL Proj ID:

BNSF 2009 OSHA

270900146

Cust COC ID

Test: TEM AHERA		Matrix: Air		TAT: 24 Hour	Qty: 4	
Order ID	Lab Sample#	Cust. Sample #	Location		Due Date	
270900146	270900146-0001	PJT052209			5/28/2009 10:50:00 PM	

Comments:

ANALYZED:	RKM	Date:	6/2/09
Preliminary Data Sent to Special Projects:	RIAM	Date:	6/2/09
Osta Entry:		Date:	
Structure Review:		Date:	
Data Valiidation:		Date:	
Reported to Client:		Osie:	

Micrographs:

Micrograph Number	Typs Diffraction or Morphology		

5/29/2009 8:37:01 AM

Order ID: 270900146

Phone: (218) 625-2332

Attn:

Fax:

Project:

Scott Carney

EMR, Inc.

11 East Superior Street

Suite 260

Duluth, MN 55802

(218) 625-2337

5539 052209-01

Samples collected 5/22/2009

Customer ID: Customer PO:

Received:

05/27/09 10:50 PM

EMRI78

EMSL Order:

BNSF 2009 OSHA

270900146

EMSL Proj ID: Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900146	270900146-0003	PRH052209		5/28/2009 10:50:00 PM

Comments:		
Comments.		
		- 1
		1
		4

ANALYZED:	RKm	Date:	6/2/09
Preliminary Data Sent to Special Projects:	Ria	Date:	6/2/09
Date Entry:		Date:	
Structure Review:		08:03	
Bata Validation:		Data:	
Reported to Client:		Date:	

Micrographs:

Micrograph Number	Type Diffraction of Morphology		

5/29/2009 2:13:13 PM

Order ID: 270900146

Phone: (218) 625-2332

Attn:

Fax:

Project:

Scott Carney

EMR, Inc.

11 East Superior Street

Suite 260

Duluth, MN 55802

(218) 625-2337

5539 052209-01

Samples collected 5/22/2009

Customer ID:

Customer PO:

Received:

270900146

EMRI78

05/27/09 10:50 PM

EMSL Order:

EMSL Proj ID:

BNSF 2009 OSHA

**Cust COC ID** 

Order ID	Lab Sample#	Cust. Sample #	Location	Due Date
270900146	270900146-0006	PLP052209		5/28/2009 10:50:00 PM

Cammanta	 	 
Comments:		
		1

ANALYZED:	RKIM	Date:	6/2/09
Preliminary Data Sent to Special Projects:	Ricm	Date:	6/2/09
Data Entry:		Date:	
Structure Review:		Date:	
Data Validation:		Onie:	
Reported to Client:		Date:	

Micrographs:

Micrograph Number	Type Diffraction or Morphology
	Micrograph Number

5/29/2009 8:37:02 AM

Order ID: 270900146

Attn:

Fax:

Project:

Scott Carney

EMR, Inc.

11 East Superior Street

Suite 260

Duluth, MN 55802

(218) 625-2337

5539 052209-01

Samples collected 5/22/2009

Phone: (218) 625-2332

EMSL Order:

Customer ID:

Customer PO:

Received:

EMSL Proj ID:

Cust COC ID

EMRI78

05/27/09 10:50 PM

270900146

BNSF 2009 OSHA

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900146	270900146-0007	BBK052209		5/28/2009 10:50:00 PM

Comments:		

ANALYZED:	RICO	Date:	6/2/09
Preliminary Data Sent to Special Projects:	2.Km	Date:	6/2/09
Date Entry:		Oate:	
Structure Review:		Date:	
Data Validation:		Oafe:	
Reported to Client:		Oate:	

Micrographs:

Micrograph Number	Туре
	Diffraction of Morphology
	Micrograph Number

**Test:** TEM AHERA (Indirect)

Matrix: Air

TAT: 24 Hour

Qty: 3

5/29/2009 8:37:02 AM

Order ID: 270900146

Phone: (218) 625-2332

Attn:

Fax:

Project:

Scott Carney

EMR, Inc.

11 East Superior Street

Suite 260

Duluth, MN 55802

(218) 625-2337

5539 052209-01

Samples collected 5/22/2009

Customer ID:

EMRI78

Customer PO:

Received:

05/27/09 10:50 PM

EMSL Order:

270900146

EMSL Proj ID:

BNSF 2009 OSHA

**Cust COC ID** 

Order ID	Lab Sample #	Cust. Sample #	Location		Due Date	
270900146	270900146-0002	PDC052209			5/22/2009	
Comments:						
		ANALY	ZED:	RICO	Date:	6/2/59
			nary Data Sent	Rian	Date:	6/2/89 6/2/09
		Data Es			Date:	
		Sinucia	re Review:		Sate:	
		Data V.	Hildation:		Date:	
		Report	ed to Client:	_	Date:	
		Microgra	phs: Microgrept	: Number	Criffractio	Type n er Morphelep

5/29/2009 8:37:02 AM

Order ID: 270900146

Phone: (218) 625-2332

Attn:

Fax:

Project:

Scott Carney

EMR, Inc.

11 East Superior Street

Suite 260

Duluth, MN 55802

(218) 625-2337

5539 052209-01 Samples collected 5/22/2009 Customer ID:

Customer PO:

Received:

05/27/09 10:50 PM

BNSF 2009 OSHA

EMSL Order:

270900146

EMRI78

EMSL Proj ID: **Cust COC ID** 

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date	
270900146	270900146-0004	PDW052209		5/22/2009	

ANALYZED:	Rkm	Date:	6/2/09
Preliminary Data Sent to Special Projects:	A (C 4)	Date:	6/2/09
Cate Energy:	Ricm	Date:	6/2/04
Structure Review		Date:	
Data Validation:		Date:	
Reported to Cheni:		Date:	

Micrographs:

	Microgreph Number	Type Offraction or Morphotogy
	- And the second	
	and the same of th	
L		1

5/29/2009 8:37:02 AM

Order ID: 270900146

Phone: (218) 625-2332

Attn:

Fax:

Project:

Scott Carney EMR, Inc.

11 East Superior Street

Suite 260

Duluth, MN 55802

(218) 625-2337

5539 052209-01 Samples collected 5/22/2009 Customer ID:

Customer PO:

Received:

EMRI78

05/27/09 10:50 PM

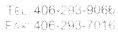
EMSL Order:

270900146

BNSF 2009 OSHA

EMSL Proj ID: Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location		Due Date	
70900146	270900146-0005	PKF052209			5/22/2009	
Comments:						
		ANAL	YZED:	R Km	Date:	6/2/09
			inary Data Sent cial Projects:	RKM	Date:	6/2/09
		Data E	ntry:		Date:	•
		Simuci	ure Review:		Date:	
		Desta V	allidation:		Date:	
		Report	ted to Chent:		Date:	
		Microgra	aphs: Micrograph	Number	Officeopor	Type r or Morpholog
				All all all all all all all all all all		





RE: Sample preparation for 270900146 (BNSF-EMR)

The following samples (P-DC052209, P-DW052209 & P-KF052209) were processed in the described method (M2):

M2 (loose material)

- 1. Loose materials in cassette consolidated with overloaded filter were prepared for ashing.
- 2. Samples placed in LFE asher until filters have been completely ashed.
- 3. Ashed sample (AS) re-suspended in 100mL particle water.
- 4. Fractions filtered (10, 15, 25 & 50mL) on 0.2μm filter backed by 5.0μm.
- 5. Selected volume processed to grids.

The following samples, P-JT052209, P-RH052209, P-LP052209, and B-BK052209 were processed directly.

Please refer to SOP No.: EPA-LIBBY-08 for further information.

KBarnes-6/1/09





INDIRECT PREPARATION RECORD REVISION 1 FEBRUARY 9, 2009

TEM Air (Circle One)

TEM Dust

PCM

EFA **360** (mm2)

Indirect with Ashing Indirect without ashing Dilution Filtration Volume Volume of Volume of Prepped by: Date: used to Volume OK to 2nd Re-Volume 2nd Re-3rd Re-Volume Fraction 1st Fraction-Volume 5/28/09 1st applied to of filter resuspend applied to Prep to Resuspend suspend applied to suspend suspend of filter applied to Resuspend Grid? Volume filter used Volume filter ashed residue 2nd filter Volume filter used used Y/N mL mL mL mL mL mL mL mL mL Order ID Sample # mL 270900146 PDC 100 10 052209 15 25 50 PDW 052209 100 10 15 25 50 PKF 052209 100 10 15 25 50 100 100 FB AB 100 100 MB 100 100

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176 Page 1 of 1



# Asbestos Chain of Custody EMSL Order Number (Lab Use Only):

5539052209-01

EMSL ANALYTICAL, INC. 107 HADDON AVENUE WESTMONT, NJ 08108

PHONE: (856) 858-4800 FAX: (856) 858-4960

270900146

Company: EM	IR.			-Bill to: ☐ Same ☐ Di Different note instructions in Co		
Street: II Eas	st Superior	St Suite Z60	Third Party Billing	requires written authorizati	on from third party	
city: Duluth		Province: MN	Zip/Postal Code: 5	580Z Cour	ntry: USA	
	Scott Car	ney	Fax #:			
Telephone #: (Z18			Email Address:			
Project Name/Number		·	<u> </u>			
Please Provide Resul	lts: 🗌 Fax 🔃 Ema	<del></del>		J.S. State Samples Tak	en: MT	
			Options* - Please Ch		40 Dave	
3 Hours 6 h	Hours   24 Hrs	│	☐ 3 Days ☐ Im charge for 3 Hour TEM A	4 Days ☐ 5 Days HERA or EPA Level II TAT.		
an authorization for	rm for this service. Analysi	s completed in accordance	e with EMSL's Terms and C	conditions located in the Anal	ytical Price Guide.	
PCM - Air		TEM - Air		TEM- Dust	0.5755	
☐ NIOSH 7400		AHERA 40 CF	R, Part 763	☐ Microvac - ASTM		
w/ OSHA 8hr. TWA		☐ NIOSH 7402		☐ Wipe - ASTM D6	}	
PLM - Bulk (reporting		EPA Level II			n (EPA 600/J-93/167)	
☐ PLM EPA 600/R-93	, .	☐ ISO 10312		Soil/Rock/Vermicul	• A (0.25% sensitivity)	
☐ PLM EPA NOB (<1°	%)	TEM - Bulk TEM EPA NOB		PLM CARB 435	,	
Point Count  ☐ 400 (<0.25%) ☐ 10	000 (<0.1%)	☐ NYS NOB 198.		l.	- B (0.1% sensitivity)	
Point Count w/Gravime	, ,	☐ Chatfield SOP	4 (11011-111able-141)		- C (0.01% sensitivity)	
☐ 400 (<0.25%) ☐ 10			lysis-EPA 600 sec. 2.5	1 = 1		
☐ NYS 198.1 (friable	· ·	TEM - Water: EP	<u> </u>			
☐ NYS 198.6 NOB (n		Fibers >10µm		Other:		
☐ NIOSH 9002 (<1%		, –	Waste Drinking			
14100113002 (4170			early Identify Homo	genous Group		
Samplers Name:	Michael MC	Kay	Samplers Signature	111000		
		'	_	Volume/Area (Air)	Date/Time Sampled	
Sample #		Sample Description	1	HA # (Bulk)	5(22(09	
PJT052209	Operator-Jesus Tovar - Rail Machine 613 07:08-10					
	<b>'</b> '		_		5 (22 109	
PC052209	Operator-	David Cast	ro-Rail Machin	ne 1288	07:09·14:33 5122(09	
PRH052209	Operator-Re	x Hawra - Ro	Lic Machine	602	07:10-10:45	
		•		13	5/22/09	
PDW 052209	Operator. D	vanc Willian	ms-Rail Machi	ne 1103	5122109	
PKF 052209	Operator. H	Keith Franci	s-RailMachin	e 1100	07:11.(4:31	
۲ ا	`			l	5/22/09	
PLP052209	PLP052209 Operator-Leroy Paulson-Rail Machine 540 07:12-10:48					
BBK052209	BBK052209 Field Blank - Opened 5/22/09					
		•				
Client Sample # (s):		-		Total # of Samples:	7	
	:Michael M	NCKay Date:	5/23/09	Tim	e: 12:00	
Received (Lab):	R/L maker		5/27/09	Tim	e: 1050	
Comments/Special In	structions:		7		,	
P= Pers	soval B	- Blank	Opened		· · · · · · · · · · · · · · · · · · ·	
1						



## EMSL Analytical, Inc.

107 West 4th Street, Libby, MT 59923

Phone: (406) 293-9066 Email: mobileasbestoslab@emsl.com

Attn: Scott Carney

EMR, Inc.

11 East Superior Street

Samples collected 5/22/2009

Suite 260

**Duluth, MN 55802** 

Customer ID: Customer PO: EMRI78

Received:

05/27/09 10:50 PM

EMSL Order:

270900146

Fax: Project: (218) 625-2337 5539 052209-01 Phone: (218) 625-2332

EMSL Proj:

BNSF 2009 OSHA

Analysis Date:

6/2/2009

Sampling Date:

5/22/2009

## Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) Performed by EPA 40 CFR Part 763 Appendix A to Subpart E

Sample	Location	Volume (Liters)	Area Analyzed (mm²)	Non Asb	Asbestos Type(s)	# Structures ≥ 0.5µ < 5µ ≥5µ	Analytical Sensitivity (S/cc)	Asbe Concen (S/mm²)	
PJT052209 270900146-0001		613.00	0.1300		None Dete	ected	0.0048	<7.70	<0.0048
PRH052209 270900146-0003		602.00	0.1300	·	None Dete	ected	0.0049	<7.70	<0.0049
PLP052209 270900146-0006		540.00	0.1300		None Dete	ected	0.0055	<7.70	<0.0055
BBK052209 270900146-0007 Field Blank			0.1300		None Dete	ected		<7.70	

Analyst(s)

Ron Mahoney (4)

R. K. Mahoney, Laboratory Manager or other approved signatory

Disclaimers: The laboratory is not responsible for data reported in structures/cc, which is dependent on volume collected by non-laboratory personnel. This lab is only responsible for data reported in structures/mm². This report may not be reproduced, except in full, without written approval by EMSL. This report must not be used to claim product endorsement by NVLAP or any agency of the U.S. Government. This report relates only to the samples reported above. Quality control data (including 95% confidence limits and laboratory and analysts' accuracy and precision) is available upon request. As per 40 CFR 763, the initial screening test may not be applied to samples with collected volumes of <1200 liters. The test results contained within this report meet the requirements of NELAC unless otherwise noted. Samples received in good condition unless otherwise noted. Accredited for NVLAP PLM/TEM. NVLAP Libby code: 200745-0



## EMSL Analytical, Inc. 107 West 4th Street, Libby, MT 59923

Phone: (406) 293-9066

Fax:

Email: mobileasbestostab@emsl.com

Attn: Scott Carney

EMR, Inc.

11 East Superior Street

Samples collected 5/22/2009

Suite 260

**Duluth, MN 55802** 

Customer ID: Customer PO: EMRI78

Received:

05/27/09 10:50 PM

EMSL Order:

270900146

Fax: Project: (218) 625-2337 5539 052209-01 Phone: (218) 625-2332

EMSL Proj:

BNSF 2009 OSHA

Analysis Date:

6/2/2009

Sampling Date:

5/22/2009

## Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) Performed by AHERA -EPA 40 CFR Part 763 Appendix A to Subpart E (Modified for Indirect Prep)

		Volume	Area Analyzed	Non	Asbestos	# Structure	s	Analytical Sensitivity	Total A: Concent	
Sample	Location	(Liters)	(mm²)	Asb	Type(s)	$\geq 0.5\mu < 5\mu$	≥5 <b>µ</b>	(S/cc)	(S/mm²)	(S/cc)
PDC052209 270900146-0002		1288.00	0.1300		None Det	ected		0.0220	<72.00	<0.0220
PDW052209 270900146-0004		1103.00	0.1300		None Det	ected		0.0250	<72.00	<0.0250
PKF052209 270900146-0005		1100.00	0.1300	·	None Det	ected		0.0170	<48.00	<0.0170

Analyst(s)

Ron Mahoney (3)

R. K. Mahoney, Laboratory Manager or other approved signatory

This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. EMSL is not responsible for data reported in structures/cc, which is dependent on volume collected by non-laboratory personnel. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted. Accredited for NVLAP PLM/TEM. NVLAP Libby code: 200745-0

Laboratory name:	EMSL27
Instrument	JEOL 1200 EX II (27-3)
Voltage (KV)	100
Magnification	20,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Eind 1/2/09
Primary filter pore size (um)	0.8

Structure

Type

NO

NA

NO

NA

NO

ND

ND

NO

ND

NO

No. of Structures

Total

Primary

EPA Sample Number:	PJT052209
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	613
Date received by lab	5/27/2009
Lab Job Number:	270900146
Lab Sample Number:	270900146-0001
Number of grids prepared	3
Prepared by	K. Barnes
Preparation date	6/1/2009
EPA COC Number:	5539 052209-01
Secondary filter pore size (um)	0.2

Identification

LA

Analyzed by	R. Mahoney
Analysis date	6/2/2009
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	Yes
Counting rules (ISO, AHERA, AST <b>M</b> )	AHERA
Grid storage location	2709-EMR-49, M
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Sketch/ Comments

Enter data in appropriate cells provided to the right---->

Sketch

5 8:: A	D - 1' - (-'	
Minimum Aspect	ratio (circ	e one):
none	≥ 3:1	2 5:1
Minimum Length (um):		0.5
Minimum Width (um):		None

Stopping Rules:	
Target Sensitivity:	0.0050
Max # of GOs:	10
Target # of Structures:	50

## F-factor Calculation:

Fract.

GO

Chrys.

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing  [For dust and dustfall, enter 1.0]
First resuspension volume or rinsate volume (mL)
Volume applied to secondary filter

## Inputs for Serial Dilutions

Second resuspension volume (mL) Volume applied to secondary filter (mL) or used for serial dilution Third resuspension volume (mL) Volume applied to secondary filter (mL)

### Input for Ashing of Secondary Filter Fraction of secondary filter used for

ashing

LA = Libby-type amphibole

Grid

2

Grid Opening

G9

67

61

DIO

p8

06

DY

02

OA = Other (non-Libby type) amphibole

Dimensions

Length

Width

C = Chrysotile

Mineral Class (see below)

OA

С

NAM

NAM = Non-asbestos material

1 = yes, blank = no

Photo

EDS

Grid opening traverse direction (circle one): H Horizontal

$\bigcirc$	Vertical
------------	----------

Are prepped grids acceptable for analysis?	(circle on	e) <b>(</b>
If No. explain:		•

(5:1)

0.5

None

# BNSF 2009 OSHA TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 1200 EX II (27-3)
Voltage (KV)	100
Magnification	20,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	E READ Firld 612/00
Primary filter pore size (um)	0.8

EPA Sample Number:	PDC052209
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1288
Date received by lab	5/27/2009
Lab Job Number:	270900146
Lab Sample Number:	270900146-0002
Number of grids prepared	
Prepared by	
Preparation date	
EPA COC Number:	5539 052209-01
Secondary filter pore size (um)	0.2

Analyzed by		
Analysis date		
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D	
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	Yes	
Counting rules (ISO, AHERA, ASTM)	AHERA	
Grid storage location	2700 EMR 49, M	R104 612/09
Archive filter(s) storage location	Westmont	
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA	

Stopping Rules:

Target Sensitivity: 0.0050

Max # of GOs: -48 5

Recording Rules:

none

Minimum Length (um):

Minimum Width (um):

Minimum Aspect Ratio (circle one):

≥ 3:1

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right---->

Grid	Grid Opening	Structure	No. of St	No. of Structures		nsions	Identification	Min	(see belo	see below) Sketch/ Comments -		1 = ye	es, blank :	= no	Fract. GO	F-factor Ca	lculation:	
O.14	Cita Operang	Туре	Primary	Total	Length	Width	- Identinodilen	LA	OA	С	NAM	Choisis Commons	Sketch	Photo	EDS	Chrys.	Indirect Pre	
							Over	load	d									Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
																		First resuspension volume or rin volume (mL)
																		Volume applied to secondary filt (mL) or used for serial dilution
																	Inputs for S	Serial Dilutions
																		Second resuspension volume (r
																		Volume applied to secondary fill (mL) or used for serial dilution
																		Third resuspension volume (mL
																		Volume applied to secondary filt (mL)
																	Input for As	hing of Secondary Filter
			i															Fraction of secondary filter used ashing

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal

V Vertical

Are prepped grids acceptable for analysis? (circle one)	Yes	No
If No, explain:		

Laboratory name:	EMSL27
Instrument	JEOL 1200 EX II (27-3)
Voltage (KV)	100
Magnification	20,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field 6/2/09
Primary filter pore size (um)	0.8

Structure

Type

ND

ND

ND

ND

No. of Structures

Total

Primary

EPA Sample Number:	PDC052209
Sample Type (A=Air, D=Dust, DF = Dustfail):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1288
Date received by lab	5/27/2009
Lab Job Number:	270900146
Lab Sample Number:	270900146-0002
Number of grids prepared	3
Prepared by	K. Barnes
Preparation date	6/1/2009
EPA COC Number:	5539 052209-01
Secondary filter pore size (um)	0.2

Identification

LA

Analyzed by	R. Mahoney
Analysis date	6/2/2009
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	IA
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	Yes
Counting rules (ISO, AHERA, ASTM)	AHERA
Grid storage location	2709-EMR-49, M
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

### F-Factor Calculation (Indirect Preps Only):

Sketch/ Comments

Enter data in appropriate cells provided to the right---->

Sketch

<u>s:</u>	
t Ratio (circ	e one):
≥ 3:1	≥ 5:1
n (um):	0.5
(um):	None
	t Ratio (circ ≥ 3:1 n (um):

Stopping Rules:	
Target Sensitivity:	0.0050
Max # of GOs:	10
Target # of Structures:	50

## F-factor Calculation:

Fract.

GO

Chrys.

Indirect Prep Inputs

1	indirect prep or ashing [For dust and dustfall, enter 1.0]
	First resuspension volume or rinsate volume (mL)
10	Volume applied to secondary filter (mL) or used for serial dilution

## Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

# Input for Ashing of Secondary Filter Fraction of secondary filter used for ashing

LA = Libby-type amphibole

Grid

2

Grid Opening

H6

H2

06

p4

02

OA = Other (non-Libby type) amphibole

Dimensions

Width

Length

C = Chrysotile

Mineral Class (see below)

С

NAM

OA

NAM = Non-asbestos material

1 = yes, blank = no

Photo

EDS

Grid opening traverse direction (circle one):

H Horizontal
V Vertical

Are prepped grids acceptable for analysis?	(circle one)	Yes No	
If No, explain:			

Laboratory name:	EMSL27
Instrument	JEOL 1200 EX II (27-3)
Voltage (KV)	100
Magnification	20,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	e REM Firld 6/2/09
Primary filter pore size (um)	0.8

Structure

Type

ND

NA

ND

ND

NO

ND

ND

ND

ND

No. of Structures

Total

Primary

PRH052209
A
602
5/27/2009
270900146
270900146-0003
3
K. Barnes
6/1/2009
5539 052209-01
0.2

Identification

LA

	·
Analyzed by	R. Mahoney
Analysis date	6/2/2009
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	Yes
Counting rules (ISO, AHERA, ASTM)	AHERA
Grid storage location	2709-EMR-49, M
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA
,,	

## F-Factor Calculation (Indirect Preps Only):

Sketch/ Comments

Enter data in appropriate cells provided to the right---->

Sketch

Recording Rules:		
Minimum Aspect Ratio (circle one):		
none	≥ 3:1	≥ 5:1
Minimum Lengt	th (um):	0.5
Minimum Width	ı (um):	None
	•	

Stopping Rules:	
Target Sensitivity:	0.0050
Max # of GOs:	10
Target # of Structures:	50

### F-factor Calculation:

Fract.

GO

Chrys.

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
First resuspension volume or rinsate volume (mL)
Volume applied to secondary filter (mL) or used for serial dilution

#### Inputs for Serial Dilutions

Second resuspension volume (mL) Volume applied to secondary filter (mL) or used for serial dilution Third resuspension volume (mL) Volume applied to secondary filter

### Input for Ashing of Secondary Filter Fraction of secondary filter used for

LA = Libby-type amphibole

Grid

2

Grid Opening

DI

**D3** 

25

27

09

DI

03

n5

D7

D9

OA = Other (non-Libby type) amphibole

Dimensions

Length

Width

C = Chrysotile

Mineral Class (see below)

OA

С

NAM

NAM = Non-asbestos material

If No, explain:

1 = yes, blank = no

Photo

EDS

Grid opening traverse direction (circle one): H Horizontal

Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No



Laboratory name:	EMSL27
Instrument	JEOL 1200 EX II (27-3)
Voltage (KV)	100
Magnification	20,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	381
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Firld 6/1109
Primary filter pore size (um)	0.8

Structure

Type

No. of Structures

Total

Primary

EPA Sample Number:	PDW052209
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1103
Date received by lab	5/27/2009
Lab Job Number:	270900146
Lab Sample Number:	270900146-0004
Number of grids prepared	
Prepared by	
Preparation date	
EPA COC Number:	5539 052209-01
Secondary filter pore size (um)	0.2

Identification

Overloaded

Analyzed by	
Analysis date	
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	Yes
Counting rules (ISO, AHERA, ASTM)	AHERA
Grid storage location	
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Sketch/ Comments

Enter data in appropriate cells provided to the right---->

Sketch

Recording Rules:		
Minimum Aspect Ratio (circle one):		
none ≥	3:1 ≥ 5:1	
Minimum Length (um	0.5	
Minimum Width (um)	None	
Minimum Width (um)	: None	

Stopping Rules:	
Target Sensitivity:	0.0050
Max # of GOs:	10
Target # of Structures:	50

F-f	actor	Calcu	lation

Fract.

GO

Chrys.

Indirect	Prep	Input
----------	------	-------

	Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
	First resuspension volume or rinsat volume (mL)
	Volume applied to secondary filter

### Inputs for Serial Dilutions

puto 101 c	1
	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

## Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

LA = Libby-type amphibole

Grid

Grid Opening

OA = Other (non-Libby type) amphibole

Dimensions

Width

Length

C = Chrysotile

Mineral Class (see below)

OA

С

NAM

NAM = Non-asbestos material

1 = yes, blank = no

Photo

EDS

Grid opening traverse direction (circle one):

H Horizontal

V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No If No, explain:


Laboratory name:	EMSL27
Instrument	JEOL 1200 EX II (27-3)
Voltage (KV)	100
Magnification	20,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	e Rt- Firld (12100
Primary filter pore size (um)	0.8

Structure

Туре

ND

ND

VD

ND

NO

ND

No. of Structures

Total

Primary

EPA Sample Number:	PDW052209
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1103
Date received by lab	5/27/2009
Lab Job Number:	270900146
Lab Sample Number:	270900146-0004
Number of grids prepared	3
Prepared by	K. Barnes
Preparation date	6/1/2009
EPA COC Number:	5539 052209-01
Secondary filter pore size (um)	0.2

Identification

LA

Analyzed by	R. Mahoney
Analysis date	6/2/2009
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	IA
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	Yes
Counting rules (ISO, AHERA, ASTM)	AHERA
Grid storage location	2709-EMR-49, N
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

## F-Factor Calculation (Indirect Preps Only):

Sketch/ Comments

Enter data in appropriate cells provided to the right---->

Sketch

Recording Rules:		
Minimum Aspect Ratio (circle one):		
none	≥ 3:1	≥ 5:1
Minimum Leng	th (um):	0.5
Minimum Width	n (um):	None

Stopping Rules:	
Target Sensitivity:	0.0050
Max # of GOs:	10
Target # of Structures:	50

## F-factor Calculation:

Fract.

GO

Chrys.

Indirect Prep Inputs

1	Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
100	First resuspension volume or rinsate volume (mL)
10	Volume applied to secondary filter

## Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

# Input for Ashing of Secondary Filter Fraction of secondary filter used for ashing

LA = Libby-type amphibole

Grid

2

Grid Opening

G-3

65

6-9

E 3

£ 5

€7

89

OA = Other (non-Libby type) amphibole

Dimensions

Length

Width

C = Chrysotile

Mineral Class (see below)

С

NAM

OA

NAM = Non-asbestos material

1 = yes, blank = no

Photo

EDS

Grid opening traverse direction (circle one):

H Horizontal

Vertical

Are prepped grids acceptable for analysis?	(circle one)	(
If No. explain:		`

n no, explain.
The state of the s

Laboratory name:	EMSL27
Instrument	JEOL 1200 EX II (27-3)
Voltage (KV)	100
Magnification	20,000 X
Grid opening area (mm2)	516.0
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	e RK-
Primary filter pore size (um)	0.8

PKF052209					
A					
1100					
5/27/2009					
270900146					
270900146-0005					
5539 052209-01					
0.2					

D
Yes
AHERA
Westmont
Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right---->

Recording Rules:									
Minimum Aspect Ratio (circle one):									
none	≥ 3:1	£5:1							
Minimum Lengt	h (um):	0.5							
Minimum Width	(um):	None							

topping Rules:	
arget Sensitivity:	0.0050
lax # of GOs:	to G portug
arget # of Structures:	50

	I		No. of Sti	ructures	Dimer	nsions		Min	eral Class	see helo		<u> </u>	1 - ve	s, blank	= no	Fract.		
Grid	Grid Opening	Structure	140. 01 30	uctures	Dilliel	1310113	Identification		rei ai Ciass (	see belo	··· <i>)</i>	Sketch/ Comments	1 - ye	o, Marik	- 110	GO	F-factor Ca	lculation:
		Туре	Primary	Total	Length	Width		LA			Sketch Photo		Photo EDS		Indirect Pre	p Inputs		
							0v	erlea	ded									Fraction of indirect pre [For dust a
																		First resus volume (m
																		Volume ap (mL) or use
																	Inputs for S	erial Dilut
																		Second re
																		Volume ap (mL) or use
											-							Third resus
										,								Volume ap (mL)
																	Input for As	hing of S
																		Fraction of ashing

primary filter used for rep or ashing and dustfall, enter 1.0] spension volume or rinsate oplied to secondary filter ed for serial dilution

tions suspension volume (mL) oplied to secondary filter ed for serial dilution spension volume (mL) oplied to secondary filter

econdary Filter secondary filter used for

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal

V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No If No, explain:

Laboratory name:	EMSL27					
Instrument	JEOL 1200 EX II (27-3)					
Voltage (KV)	100					
Magnification	20,000 X					
Grid opening area (mm2)	0.013					
Scale: 1L =	1					
Scale: 1D =	1					
Primary filter area (mm2)	385					
Secondary Filter Area (mm2)	360					
Category (Field, Rep., Dup., Blank)	e Recon Field 6/2/08					
Primary filter pore size (um)	0.8					

Structure

Type

ND

NA

ND

מע

ND

ND

ND

Grid Opening

<u>C10</u>

C6

C4

C2

010

08

06

04

02

Grid

No. of Structures

Total

Primary

EPA Sample Number:	PKF052209				
Sample Type (A=Air, D=Dust, DF = Dustfall):	A				
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1100				
Date received by lab	5/27/2009				
Lab Job Number:	270900146				
Lab Sample Number:	270900146-000				
Number of grids prepared	3				
Prepared by	K. Barnes				
Preparation date	6/1/2009				
EPA COC Number:	5539 052209-01				
Secondary filter pore size (um)	0.2				

Identification

LA

Analyzed by	R. Mahoney
Analysis date	6/2/2009
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	IA
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	Yes
Counting rules (ISO, AHERA, ASTM)	AHERA
Grid storage location	2709-EMR-49, N
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Sketch/ Comments

Enter data in appropriate cells provided to the right---->

Sketch

Recording Rules:		
Minimum Aspect Ratio (circle one):		
none	≥ 3:1	≥ 5:1
Minimum Length (um):		0.5
Minimum Width (um):		None

Stopping Rules:	
Target Sensitivity:	0.0050
Max # of GOs:	10
Target # of Structures:	50

### F-factor Calculation:

Fract.

GΟ

Chrys.

Indirect Prep Inputs

1	Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
	First resuspension volume or rinsate volume (mL)
15	Volume applied to secondary filter (mL) or used for serial dilution

## Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

# Input for Ashing of Secondary Filter Fraction of secondary filter used for

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

Dimensions

Width

Length

C = Chrysotile

Mineral Class (see below)

OA

С

NAM

NAM = Non-asbestos material

1 = yes, blank = no

Photo

EDS

Grid opening traverse direction (circle one):

H Horizontal

V Vertical

Are prepped grids acceptable for analysis?	(circle one) (Yes)	No
If No, explain:		

Laboratory name:	EMSL27
Instrument	JEOL 1200 EX II (27-3)
Voltage (KV)	100
Magnification	20,000 X
Grid opening area (mm2)	0,013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	385 360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

Structure

Type

No. of Structures

Total

Primary

EPA Sample Number:	PLP052209
Sample Type (A=Air, D=Dust, DF = Dustfall);	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	540
Date received by lab	5/27/2009
Lab Job Number:	270900146
Lab Sample Number:	270900146-0006
Number of grids prepared	3
Prepared by	K. Barnes
Preparation date	6/1/2009
EPA COC Number:	5539 052209-01
Secondary filter pore size (um)	0.2

Identification

Analyzed by	R. Mahoney
Analysis date	6/2/2009
Method (D=Direct, l=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	Yes
Counting rules (ISO, AHERA, ASTM)	AHERA
Grid storage location	2709-EMR-49, N
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Sketch/ Comments

Enter data in appropriate cells provided to the right---->

Sketch

Recording Rules:		
Minimum Aspect Ratio (circle one):		
none	≥ 3:1	<b>(5:1)</b>
Minimum Length (um):		0.5
Minimum Width (um):		None
	_	· , , , , , , , , , , , , , , , , , , ,

Stopping Rules:	
Target Sensitivity:	0.0050
Max # of GOs:	10
Target # of Structures:	50

### F-factor Calculation:

Indirect Prep Inputs

Fract.

GO

Chrys.

Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
First resuspension volume or rinsate volume (mL)
Volume applied to secondary filter (mL) or used for serial dilution

## Inputs for Serial Dilutions

	1
	Second resuspension volume (mL
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter			
	Fraction of secondary filter used for		
	ashing		

LA = Libby-type amphibole

Grid

2

Grid Opening

F10

FY

FZ

OA = Other (non-Libby type) amphibole

Dimensions

Width

Length

C = Chrysotile

Mineral Class (see below)

С

NAM

OA

NAM = Non-asbestos material

1 = yes, blank = no

Photo

EDS

Grid opening traverse direction (circle one): H Horizontal

$(\nabla)$	Vertica

Are prepped grids acceptable for analysis? (circle one) (Yes) No If No, explain:



Laboratory name:	EMSL27
Instrument	JEOL 1200 EX II (27-3)
Voltage (KV)	100
Magnification	20,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	385 360
Category (Field, Rep., Dup., Blank)	Blank
Primary filter pore size (um)	0.8

Structure

Type

ND

ND

NO

ND

Grid Opening

Grid

2

No. of Structures

Total

Primary

	<del></del>
EPA Sample Number:	BBK052209
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	0
Date received by lab	5/27/2009
Lab Job Number:	270900146
Lab Sample Number:	270900146-0007
Number of grids prepared	3
Prepared by	K. Barnes
Preparation date	6/1/2009
EPA COC Number:	5539 052209-01
Secondary filter pore size (um)	0.2

Identification

LA

At	
Analyzed by	R. Mahoney
Analysis date	6/2/2009
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	Yes
Counting rules (ISO, AHERA, ASTM)	AHERA
Grid storage location	2709-EMR-49, O
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Sketch/ Comments

Enter data in appropriate cells provided to the right---->

Sketch

Ratio (circ	le one):
≥ 3:1	≥ 5:1
(um):	0.5
ım):	None
	140116
	Ratio (circ ≥ 3:1 (um):

Stopping Rules:	
Target Sensitivity:	
Max # of GOs:	10
Target # of Structures:	50

F 64	O when the street
r-ractor	Calculation

Fract.

GO

Chrys.

Indirect	Prep	In	pu	t
----------	------	----	----	---

Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
First resuspension volume or rinsati volume (mL)
Volume applied to secondary filter (mL) or used for serial dilution

#### Inputs for Serial Dilutions

inputs for Serial Dilutions		
	Second resuspension volume (mL)	
	Volume applied to secondary filter (mL) or used for serial dilution	
	Third resuspension volume (mL)	
	Volume applied to secondary filter (mL)	

### Input for Ashing of Secondary Filter Fraction of secondary filter used for ashing

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

Dimensions

Length

Width

C = Chrysotile

Mineral Class (see below)

С

NAM

NAM = Non-asbestos material

1 = yes, blank = no

Photo

EDS

Grid opening traverse direction (circle one): H Horizontal

•	1 10112
$\langle \rangle$	Vertica

Are prepped grids acceptable for analysis? (circle one) Yes No If No, explain:



# **INTERNAL CHAIN OF CUSTODY**

5/20/2009 10:12:40 AM

Order ID: 270900123

Attn:

Fax:

**Scott Carney** 

EMR, Inc.

11 East Superior Street

Suite 260

Duluth, MN 55802

(218) 625-2337

Phone: (218) 625-2332

Project: Samples collected 5/19/2009

Customer ID Customer PO:

Received:

05/20/09 8:45 AM

EMSL Order:

270900123

EMRI78

EMSL Proj ID:

BNSF 2009 OSHA

Cust COC ID

Test: TEM AHERA	A (Indirect) M	<u>atrix</u> Air	<u>TAT:</u> 24 Hour	<u>Qty:</u> 6
Acct Sts:	Slsprsn:	epodell	<u>Logged:</u> rmahoney	<u>Date:</u> 5/20/2009
Inter- Lab Sample Trans	<u>sfer</u>		Sample Acceptable Condition: Unacceptable	
Samples Relinqui	shed:	Date	Comments	
Samples Received	d:	Date		
Package Mailed to	Westmont:	Date		
Method of Deliver	y:		Initial Prep (Initials/Lab): เว็บไ	Date: 5/20/A
Includes: (Circle)			Filter Prep (Initials/Lab):	Date: 5/w/09 MSRC
Benchsheets	Sample Slides	Sample filters	Grid Prep (Initials/Lab): Any	Date: [/24/09
Micrographs	GridBox	Other	For Special Projects Use Only	
Final Package Received: Date:		Date:	QC Selection:	
			Date Package Review:	Date:
			Date Package Mailed:	Date:
Special Instructions				

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900123	270900123-0001	01 SUML	ash 1/2 filter	5/19/2009
270900123	270900123-0002	02 50mL	and In filter	5/19/2009
270900123	270900123-0003	03 50mL	ash 1/2 filter	5/19/2009
270900123	270900123-0004		il) ast Find filter-loose material	5/19/2009
270900123	270900123-0005	05 25ml (2nd o	will ask filter-love material	5/19/2009
270900123	270900123-0006	0610 prmi	astrill filter - love material	5/19/2009

2709 EMR-ARC-50 (B)(C)



# Asbestos Chain of Custody EMSL Order Number (Lab Use Only):

EMSL ANALYTICAL, INC 107 HADDON AVENUE WESTMONT, NJ 08108

PHONE: (856) 858-4800 FAX: (856) 858-4960

270900123 EMSL-Bill to: ☐ Same ☐ Different If Bill to is Different note instructions in Comments\*\* East Superior St Suite 200 Third Party Billing requires written authorization from third party State/Province: MN Zip/Postal Code: 55802 Country: USA Scot Carney Report To (Name): Fax #: Telephone #{ 2(8) 625-2331 **Email Address:** Project Name/Number: Please Provide Results: 

Fax ☐ Email Purchase Order: U.S. State Samples Taken: Turnaround Time (TAT) Options\* – Please Check ☐ 3 Hours ☐ 6 Hours 24 Hrs ☐ 48 Hrs ☐ 3 Days ☐ 4 Days \*For TEM Air 3 hours/6 hours, please call ahead to schedule.\*There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide. PCM - Air TEM - Air **TEM-** Dust ☐ NIOSH 7400 AHERA 40 CFR, Part 763 ☐ Microvac - ASTM D 5755 w/ OSHA 8hr. TWA ☐ NIOSH 7402 Wipe - ASTM D6480 PLM - Bulk (reporting limit) ☐ EPA Level II ☐ Carpet Sonication (EPA 600/J-93/167) ☐ PLM EPA 600/R-93/116 (<1%) ☐ ISO 10312 Soil/Rock/Vermiculite ☐ PLM EPA NOB (<1%) PLM CARB 435 - A (0.25% sensitivity) TEM - Bulk **Point Count** ☐ TEM EPA NOB ☐ PLM CARB 435 - B (0.1% sensitivity) ☐ 400 (<0.25%) ☐ 1000 (<0.1%)</p> ☐ NYS NOB 198.4 (non-friable-NY) ☐ TEM CARB 435 - B (0.1% sensitivity) Point Count w/Gravimetric ☐ Chatfield SOP ☐ TEM CARB 435 - C (0.01% sensitivity) ☐ 400 (<0.25%) ☐ 1000 (<0.1%)</p> ☐ TEM Mass Analysis-EPA 600 sec. 2.5 ☐ EPA Protocol (Semi-Quantitative) ■ NYS 198.1 (friable in NY) TEM - Water: EPA 100.2 ☐ EPA Protocol (Quantitative) NYS 198.6 NOB (non-friable-NY) Fibers >10µm ☐ Waste ☐ Drinking Other: All Fiber Sizes Waste Drinking ☐ NIOSH 9002 (<1%) ☐ Check For Positive Stop – Clearly Identify Homogenous Group Samplers Name: Michael Mckou Samplers Signature: Michael Volume/Area (Air) Date/Time Sample # Sample Description HA # (Bulk) Sampled 5/19/09 Denator - Rex Hanna-Rail Machine 1584 07:19 - 16:55 5/19/09 Jesus Torra-Ray Mac OPEL 07:20-16:58 5119109 1584 eroy Paulson. Rail Machine 5 1.9 109 07:23-16:59 Williams-Profiler-Rail Machin 1382 5119109 07:25-16:57 Castro- Profiler-Rail Machine 05 1373 5/19/09 Keith Francis-Profiler-Rail Machine 1300 07:29-16:54 Client Sample # (s): Total # of Samples: Relinquished (Client): Michael McKay Date: Time: 08:45 Received (Lab): Date: 0845 Time: Comments/Special Instructions:

## Personal Air Sample Data BNSF Kootenai River Subdivision OSHA Sampling

5/19/09 Date: 270900123 Work Area Mileposts: 1307-1313 Sampled Person's Name: Rex Hanna BNSF Employee ID 7516762 Job Title Perator Machine Type 40045 Pump Number Sample # 01 Starting Flow Rate 2.8 07:19 Sample Start Time Ending Flow Rate 2.7 Sample End Time 6:55 Sampled Person's Name: Jesus Tovra BNSF Employee ID 5054390 Job Title Operator Machine Type X540045 Pump Number Sample # 02 Starting Flow Rate Z.8 Sample Start Time 07:20 **Ending Flow Rate** 2.7 Sample End Time 16:58 Sampled Person's Name: Leroy Paulson BNSF Employee ID 2514925 Job Title Operator Machine Type 540045 Pump Number Sample # Starting Flow Rate Sample Start Time 07:22 **Ending Flow Rate** 16:58 Sample End Time Sampled Person's Name: Duane Williams BNSF Employee ID 4882486 Job Title Derator Machine Type <u>80000P</u> Pump Number Sample # Starting Flow Rate Sample Start Time Ending Flow Rate Sample End Time

## Personal Air Sample Data BNSF Kootenai River Subdivision OSHA Sampling

Date: 5 | 19 | 09 Work Area Mileposts: 1307-1313 270900123 Sampled Person's Name: David Castro BNSF Employee ID 750 3923 Job Title Profiler Machine Type Pump Number Sample # Starting Flow Rate 2.4 Sample Start Time 07:25 Ending Flow Rate Sample End Time Sampled Person's Name: Keith Francis BNSF Employee ID 1178722 Job Title Profiler Machine Type 80000PX Pump Number Sample # Starting Flow Rate Sample Start Time 07:29 Ending Flow Rate 2.3 16:54 Sample End Time Sampled Person's Name: BNSF Employee ID Job Title Machine Type Pump Number Sample # Starting Flow Rate Sample Start Time Ending Flow Rate Sample End Time Sampled Person's Name: BNSF Employee ID Job Title Machine Type Pump Number Sample # Starting Flow Rate Sample Start Time Ending Flow Rate Sample End Time

TEL: 406-293-9066 FAX: 406-293-7016

RE: Sample preparation for 270900123 (BNSF-EMR)

The following samples (01, 02 & 03) were processed in the described method (M1):

M1 (1/2 filter used)

- 1. ½ of original filter sectioned for ashing.
- 2. Samples placed in LFE asher until filter has been completely ashed.
- 3. Ashed sample (AS) re-suspended in 100mL particle water.
- 4. Fractions filtered (10, 15, 25 & 50mL) on 0.2μm filter backed by 5.0μm
- 5. Selected volume processed to grids.

The following samples (04, 05 & 06) were processed in the described method (M2):

M2 (loose material)

- 1. Loose materials in cassette consolidated with overloaded filter were prepared for ashing.
- 2. Samples placed in LFE asher until filters have been completely ashed.
- 3. Ashed sample (AS) re-suspended in 100mL particle water.
- 4. Fractions filtered (10, 15, 25 & 50mL) on 0.2μm filter backed by 5.0μm. Samples 04 and 05 were processed through second dilution.
- 5. Selected volume processed to grids.

Please refer to SOP No.: EPA-LIBBY-08 for further information.



# **Indirect Preparation Record**

INDIRECT PREPARATION RECORD **REVISION 1 FEBRUARY 9, 2009** 

 $TEM\ Air$ 

TEM Dust

EFA <u>**360**</u> (mm2)

PCM(Circle One)

		Indirect w	ithout ashing		Dilution Filtra	tion				****	Indirect w	ith Ashing		
Prepped by:	Date:  Show of Sample #	Fraction of filter used	1st Resuspend Volume mL	Volume applied to filter mL	Volume of 1st Resuspend used mL	2nd Re- suspend Volume mL	Volume applied to filter mL	Volume of 2nd Re- suspend used	3rd Re- suspend Volume	Volume applied to filter	Fraction of filter ashed	Volume used to resuspend residue	Volume applied to 2nd filter	OK to Prep to Grid?
Order ID	Sample #	<b></b>	11111	1112	11111	11111	1111	mL	mL	mL		mL	mL	Y/N
270900123	01										1/2	100	10	
						:			·				15	
													25	
													50	У
· · · · · · · · · · · · · · · · · · ·	02										1/2	100	10	-7
													15	
													25	
													50	Y
	03										1/2	100	10	
													15	
													25	
								1					50	У
	04				10	100	(10)01	nalyged			1	(00	10	У
							1/						80	
ļ }	,						25							У
							50							
,	0=				/0	100	(0				1	100	10	
							15						80	
							(25)							У
							50							

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Page 1 of 2



TEM Dust

PCM

# Indirect Preparation Record

EFA 360 (mm2)

INDIRECT PREPARATION RECORD REVISION 1 FEBRUARY 9, 2009

(Circle One)

Circle		Indirect w	ithout ashing		Dilution Filtra	tion					indirect w	ith Ashing		
Prepped by:  Order ID	Date:	Fraction of filter used	1st Resuspend Volume mL	Volume applied to filter mL	Volume of 1st Resuspend used mL	2nd Re- suspend Volume mL	Volume applied to filter mL	Volume of 2nd Re- suspend used mL	3rd Re- suspend Volume mL	Volume applied to filter mL	Fraction of filter ashed	Volume used to resuspend residue mL	Volume applied to 2nd filter mL	OK to Prep to Grid? Y/N
270900123	06					!					1	100	10	y and
	·												15	,
:							- <del></del>						25	У
	0												S	
	FB AB									*	_	100	100	У
	MB										-	100	100	y
								_						
									·					
				(m)		11-1-1-1-1								
				* */2 <u>/</u>	ول									
				7										
									:					

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Page Zof \_\_

EMSL ANALYTICAL, INC. 107 4TH STREET WEST LIBBY, MONTANA 59923

> TEL: 406-293-9066 FAX: 406-293-7016

## RE: Sample preparation for 270900123 (BNSF-EMR)

The following samples (01, 02 & 03) were processed in the described method (M1):

M1 (1/2 filter used)

- 1. ½ of original filter sectioned for ashing.
- 2. Samples placed in LFE asher until filter has been completely ashed.
- 3. Ashed sample (AS) re-suspended in 100mL particle water.
- 4. Fractions filtered (10, 15, 25 & 50mL) on 0.2μm filter backed by 5.0μm
- 5. Selected volume processed to grids.

The following samples (04, 05 & 05) were processed in the described method (M2):

M2 (loose material)

- 1. Loose materials in cassette consolidated with overloaded filter were prepared for ashing.
- 2. Samples placed in LFE asher until filters have been completely ashed.
- 6. Ashed sample (AS) re-suspended in 100mL particle water.
- 7. Fractions filtered (10, 15, 25 & 50mL) on 0.2μm filter backed by 5.0μm. Samples 04 and 05 were processed through second dilution.
- 3. Selected volume processed to grids

Please refer to SOP No.: EPA-LIBBY-08 for further information.



5/20/2009 10:23:44 AM

Order ID: 270900123

Attn: Fax: Project:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802 (218) 625-2337 Samples collected 5/19/2009	Phone: (218)	625-2332	Customer ID: Customer PO: Received: EMSL Order: EMSL Proj ID: Cust COC ID	EMRI78 05/20/09 8:45 AM 270900123 BNSF 2009 OSHA		
Test: TE	M AHERA (Indirect)		Matrix: Air	TA	<b>AT:</b> 24 Hour		Qty: 6
Order ID	Lab Sample #	Cust. S	ample#	Location		Due Date	
27090012 Comme		01				5/19/2009	
			ANALYZE	ED:	pry	Date:	5/26/09
				ry Data Sent	7	Date:	, , , , , , , , , , , , , , , , , , , ,
			Cate Entr	Projects:		Date:	
			Structure			Oute:	
			Data Valii	dation:		Date:	
			Reported	to Client:		Date:	
			Micrographs	Micrographs:   Necropraph Number		Offrecis	Type en or Morphology
			LL				

5/20/2009 10:23:44 AM

Order ID: 270900123

Attn: Scott Carney

Fax:

Project:

EMR, Inc.

11 East Superior Street

Suite 260

Duluth, MN 55802

(218) 625-2337 Samples collected 5/19/2009

Phone: (218) 625-2332

EMSL Order:

Received:

Customer ID:

Customer PO:

270900123

EMSL Proj ID:

BNSF 2009 OSHA

05/20/09 8:45 AM

EMRI78

**Cust COC ID** 

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date	
270900123	270900123-0002	02		5/19/2009	

Comments:		

ANALYZED:	<i>SNY</i> Date: <i>J/26</i>	109
Preliminary Data Sent to Special Projects:	Date:	
Date Entry:	Oste:	
Sinucture Review:	Date:	
Data Validation:	Date:	
Reported to Chent:	Date:	

Micrographs:

Trilorograpino		
	Micrograph Number	Type Offrection or Morphology
		contractions of Section or only
· · · · · · · · · · · · · · · · · · ·		

5/20/2009 10:23:44 AM

Order ID:	270900123
-----------	-----------

Attn: Scott Carney

Fax:

Project:

EMR, Inc.

11 East Superior Street

Suite 260

Duluth, MN 55802 (218) 625-2337

Phone: (218) 625-2332

Samples collected 5/19/2009

Customer ID: EMRI78

Customer PO:

Received:

05/20/09 8:45 AM

270900123

BNSF 2009 OSHA

EMSL Proj ID: **Cust COC ID** 

EMSL Order:

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date	
270900123	270900123-0003	03		5/19/2009	

Comments:

ANALYZED:	prov	Date:	5/26/09
Preliminary Data Sent to Special Projects:		Date:	
Date Entry:		Date:	
Structure Review:		Date:	
Data Valildation:		Date:	
Reported to Chest:		Date:	

Micrographs:

Microgreph Number	Type Offrection or Morphology

5/20/2009 10:23:44 AM

Order ID:	270900123	
Cidei ib.	Z100001Z0	

Attn:

Fax:

Project:

Scott Carney

EMR, Inc.

11 East Superior Street

Samples collected 5/19/2009

Suite 260

Duluth, MN 55802 (218) 625-2337

Phone: (218) 625-2332

EMSL Order:

EMSL Proj ID:

Customer ID:

Customer PO:

Received:

270900123

EMRI78

BNSF 2009 OSHA

05/20/09 8:45 AM

**Cust COC ID** 

Order ID	Lab Sample #	Cust. Sample	# Location		<b>Due Date</b>	
270900123	270900123-0004	04			5/19/2009	
Comments:						
			NALYZED:	prof	Date:	1/27/09
			reliminary Data Sent Special Projects:		Date:	
			ata Emey:		Date:	
		[9	inuclare Review:		Date:	
			ata Valiidation:		Date:	
		R	eported to Chent:		Daie:	
		V	ficrographs:	n Alicentan		Туре
			1831001 11(5) 6350	-1 (961-1-1969-	Offrects	on er Morphetegy
						<del></del>
		-				

5/20/2009 10:23:44 AM

Order ID: 270900123

Attn: Scott Carney

Fax:

Project:

EMR, Inc.

11 East Superior Street

Suite 260

Duluth, MN 55802

(218) 625-2337

Samples collected 5/19/2009

Phone: (218) 625-2332

Customer PO:

Customer ID:

Received:

05/20/09 8:45 AM

EMSL Order:

270900123

EMRI78

EMSL Proj ID:

BNSF 2009 OSHA

**Cust COC ID** 

Order ID	Lab Sample #	Cust. Sample #	Location		Due Date	
70900123	270900123-0005	05			5/19/2009	
Comments:						
		AN	ALYZED:	pmy	Date:	5-/26/09
			liminary Data Sent Special Projects:	, ,	Date:	. ,
		Ost	a Entry:		Date:	
		Sin	Joture Review:		Date:	
		Dest	a Valitdation:		Date:	
		Rep	orted to Client:		Date:	
		Micr	ographs:			90
			Mioregraph	Number 	Offractio	Type n or Morphstol

5/20/2009 10:23:44 AM

Order ID: 27	0900123
--------------	---------

Attn: Scott Carney

Fax:

EMR, Inc.

11 East Superior Street

Suite 260

Duluth, MN 55802

(218) 625-2337

Phone: (218) 625-2332

Samples collected 5/19/2009 Project:

Customer ID:

Customer PO:

Received:

05/20/09 8:45 AM

EMRI78

EMSL Order:

270900123 BNSF 2009 OSHA

EMSL Proj ID: **Cust COC ID** 

Order ID	Lab Sample #	Cust. Sampl	e# Location		Due Date	
270900123	270900123-0006	06			5/19/2009	
Comments:						
			ANALYZED:	pnj	Date:	5/27/09
			Preliminary Data Sent to Special Projects:		Date:	
			Date Entry:		Oste:	
			Structure Review:		Oate:	
			Data Valildation:		Date:	
			Reported to Client:		Date:	
			Micrographs:	h Number	Offractio	Type n er Morpholog



## EMSL Analytical. Inc.

107 West 4th Street, Libby, MT 59923

Phone: (406) 293-9066 Email: mobileasbestoslab@emst.com

Attn: Scott Carney

EMR, Inc.

11 East Superior Street

Samples collected 5/19/2009

Suite 260

**Duluth, MN 55802** 

Customer ID: Customer PO: EMRI78

Received:

05/20/09 8:45 AM

EMSL Order:

270900123

Fax: Project: (218) 625-2337

Phone: (218) 625-2332

EMSL Proj:

BNSF 2009 OSHA

Analysis Date:

5/27/2009

Sampling Date:

5/19/2009

## Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) Performed by AHERA -EPA 40 CFR Part 763 Appendix A to Subpart E (Modified for Indirect Prep)

		Volume	Area Analyzed	Non	Von Asbestos	stos # Structure:		Analytical Sensitivity		Asbestos atration	
Sample	Location	(Liters)	(mm²)	Asb	Type(s)	≥ 0.5µ < 5µ	≥5μ	(S/cc)	(S/mm²)	(S/cc)	
01 <i>270900123-0001</i>		1584.00	0.1300		None Dete	ected		0.0070	<29.00	<0.0070	
02 270900123-0002		1590.00	0.1300		None Dete	ected		0.0070	<29.00	<0.0070	
03 270900123-0003		1584.00	0.1300		None Dete	ected		0.0070	<29.00	<0.0070	
04 270900123-0004		1382.00	0.1300		None Dete	ected		0.2000	<720.00	<0.2000	
05 270900123-0005		1373.00	0.1300		None Dete	ected		0.0810	<290.00	<0.0810	
06 270900123-0006		1300.00	0.1300		None Dete	ected		0.0850	<290.00	<0.0850	

Analyst(s)

Roy Pescador (6)

R. K. Mahoney Laboratory Manager or other approved signatory

This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. EMSL is not responsible for data reported in structures/cc, which is dependent on volume collected by non-laboratory personnel. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted. Accredited for NVLAP PLM/TEM. NVLAP Libby code: 200745-0

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II(27-2)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	<b>1</b>
Scale: 1D =	4
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

Structure

Type

Grid Opening

Grid

No. of Structures

Total

Primary

EPA Sample Number:	01
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	15784
Date received by lab	5/20/2009
Lab Job Number:	270900123
Lab Sample Number:	270900123-000
Number of grids prepared	
Prepared by	
Preparation date	
EPA COC Number:	5/19/2009
Secondary filter pore size (um)	0,2

Identification

LA

Ð
No
AHERA
Westmont
Not QA

F-Factor Calculation (Indirect Preps Only):

Sketch/ Comments

Enter data in appropriate cells provided to the right---->

Sketch

Recording Rule	<u>s:</u>				
2.12.20.000					
Minimum Aspec	t Rati	o (cire	de on	ie):	
				11.15	
3 (0.0000)					`
none	≥,	5.7	- 111111	(≥5:1	/ .
				$\smile$	
				111111	
Minimum Lengt	ก (นกา	).		0.5	
	igii;		11111111		
Minimum Width	(um)	:::::::::		None	
					::::.
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	11. 111				

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	sens																			
Max#o																				
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## F-factor Calculation:

Fract.

GO

Chrys.

EDS

Indirect	Prep Inputs
	Fraction of primary filter used for indirect prep or ashing
	[For dust and dustfall, enter 1.0]
	First resuspension volume or rinse volume (mL)
****	Volume applied to secondary filter

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter
Fraction of secondary filter used for ashing

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

Dimensions

Length

OVERLOADED

Width

C = Chrysotile

Mineral Class (see below)

С

NAM

OA

NAM = Non-asbestos material

1 = yes, blank = no

Photo

Grid opening traverse direction (circle one):

H Horizontal

V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No If No, explain:

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (27-[)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0,013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

Structure

Type

ND

ND

ND ND

ND

ND

ND

ND ND

ND

No. of Structures

Total

Primary

EPA Sample Number:	01
Sample Type (A=Air, D=Dust, DF = Dustfall):	Α
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1584
Date received by lab	5/20/2009
Lab Job Number:	270900123
Lab Sample Number:	270900123-0001
Number of grids prepared	3
Prepared by	R. Pescador
Preparation date	5/26/2009
EPA COC Number:	5/19/2009
Secondary filter pore size (um)	0.2

Identification

LA

R. Pescador
5/ <b>ZG</b> /2009
ı,A
No
AHERA
2709-EMR-49, C
Westmont
Not QA

### F-Factor Calculation (Indirect Preps Only):

Sketch/ Comments

Enter data in appropriate cells provided to the right---->

Sketch

Recording Rules:							
Minimum Aspect Ratio (circle one):							
none ≥ 3:	1 (≥ 5:1)						
Minimum Length (um):	0.5						
Minimum Width (um):	None						

Stopping Rules:	
Target Sensitivity:	0.005
Max # of GOs:	10
Target # of Structures:	mus

## F-factor Calculation:

Fract.

GO

Chrys.

Indirect Prep Inputs

0.5	Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
	First resuspension volume or rinsat volume (mL)
50	Volume applied to secondary filter

Inputs for S	Serial Dilutions
	Second resuspension volume (mL
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter Fraction of secondary filter used for

LA = Libby-type amphibole

Grid

Grid Opening

٤З

29

Bg BIO

2

OA = Other (non-Libby type) amphibole

Dimensions

Length

Width

C = Chrysotile

Mineral Class (see below)

OA

С

NAM

NAM = Non-asbestos material

1 = yes, blank = no

Photo

EDS

Grid opening traverse direction (circle one): H Horizontal



Are prepped grids acceptable for analysis? (circle one) (Pes No



If No, explain:

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II(27-2)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	•
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

Structure

Grid Opening

Grid

No. of Structures

EPA Sample Number:	02
Sample Type (A=Air, D=Dust, DF = Dustfall):	Α
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1590
Date received by lab	5/20/2009
Lab Job Number:	270900123
Lab Sample Number:	270900123-000
Number of grids prepared	
Prepared by	
Preparation date	
EPA COC Number:	5/19/2009
Secondary filter pore size (um)	0.2

Identification

D
No
AHERA
Westmont
Not QA

## F-Factor Calculation (Indirect Preps Only):

Sketch/ Comments

Enter data in appropriate cells provided to the right---->

Recording Rules:	
Minimum Aspect Ratio (circ	de one):
none ≥3:1	<b>(251)</b>
Minimum Length (um):	0.5
Minimum Width (um);	None
*	

Target Sensitivity: 0.005	Target Sensitivity: 0.005  Max # of GOs:	Stopping Rule	<u>:s:</u>		
	Hereit in the second se	Target Sensiti	vity:	0.0	005
	Max # of GOs:				

### F-factor Calculation:

Fract.

GO

Indirect Prep Inputs
Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]
First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter
(mL) or used for serial dilution

Inputs for S	Serial Dilutions
	Second resuspension volume (mL
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter
Fraction of secondary filter used for ashing

Gild	Grid Operang	Туре	Primary	Total	Length	Width	identification	S	OA	С	NAM	Sketch Comments	Sketch	Photo	EDS	Chrys.
		0	Primary VZK	10	4D											

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

**Dimensions** 

C = Chrysotile

Mineral Class (see below)

NAM = Non-asbestos material

1 = yes, blank = no

Grid opening traverse direction (circle one):

H Horizontal

V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No If No, explain:

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (27-1)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0,013
Scale: 1L =	1
Scale: 1D =	1
Primary fitter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	02
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1590
Date received by lab	5/20/2009
Lab Job Number:	270900123
Lab Sample Number:	270900123-0002
Number of grids prepared	3
Prepared by	R. Pescador
Preparation date	5/26/2009
EPA COC Number:	5/19/2009
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	5/ 24/2009
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	A
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	AHERA
Grid storage location	2709-EMR-49, C
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

## F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right---->

Recording Rules:  Minimum Aspect Ratio (circle one):										
cle one):										
25:1										
0.5										
None										

Stopping Rules:	
Target Sensitivity:	0.005
Max # of GOs:	10
Target # of Structures:	***************************************

## F-factor Calculation:

Indirect Prep Inputs

Praction of primary filter used for infector prep or ashing [For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for S	Serial Dilutions
	Second resuspension volume (mt
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter
Fraction of secondary filter used for ashing

Grid Grid Opening	Cheninal Structure			Dimensions Identification		Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO		
Gird	One opening	Туре	Primary	Total	Length	Width	Identification	LA	OA	С	NAM	Sketch Comments	Sketch	Photo	EDS	Chrys.
j	<b>ל</b>	D														
	<b>P</b> 5	D														
	23	4														
	DI	Ð														
	G2	An An														
2	<b>I</b> 4	ND														
	I6	ND														
	I8	ND														
	IIO	20														
	<b>E</b> 9	N														

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal

Vertical

Are prepped grids acceptable for analysis? (circle one) ff No, explain:



Laboratory name:	EMSL27
Instrument	JEOL 100 CX II(27-2)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D ≃	
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

Structure

Type

Grid Opening

Grid

No. of Structures

Total

Primary

EPA Sample Number:	03
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1584
Date received by lab	5/20/2009
Lab Job Number:	270900123
Lab Sample Number:	270900123-000 <b>3</b>
Number of grids prepared	
Prepared by	
Preparation date	
EPA COC Number:	5/19/2009
Secondary filter pore size (um)	0.2

Identification

LA

Analyzed by	
Analysis date	
Method (D=Direct, I=Indirect, IA=Indirects) ashed)	t, D
f sample type = air, is there loose mater or debris in the cowl? (Yes, No)	ial No
Counting rules ISO, AHERA, ASTM)	AHERA
Grid storage location	
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	AQ IOM
	Not

F-Factor Calculation (Indirect Preps Only):

Sketch/ Comments

Enter data in appropriate cells provided to the right---->

Sketch

1 = yes, blank = no

Photo

EDS

Recording Rules:	
Anna de la companya del companya de la companya de la companya del companya de la companya del companya de la companya de la companya de la companya de la companya del companya de la com	
	Tillion and and all the first
Minimum Aspect Ratio (circ	de one):
	*********
**************************************	1.00 - 1.00
none ≥3:1	<b>/ ≥5:1</b> \
	(
Minimum Length (um):	2.0
irminidin Congin (am).	
· · · · · · · · · · · · · · · · · · ·	
Minimum Width (um):	None
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	\$1,411,1 <sub>2</sub> ;**::::*::::::::::

			-		_	_		-	_	_	-		***	-
Stopping	er Dust	~~		diii.										
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Target #	~ ~	mer	Ann	-										
Target #	010	duc	ıuı	co	200									
				· T · ·										

## F-factor Calculation:

Fract.

GO

Chrys.

Indirect P	rep Inputs
	Fraction of primary filter used for indirect prep or ashing
	[For dust and dustfall, enter 1.0]
	First resuspension volume or rinsa volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter
(mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter
Fraction of secondary filter used for ashing

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

Dimensions

Width

Length

C = Chrysotile

Mineral Class (see below)

С

NAM

OA

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal

V Vertical

ve prepped grids acceptable for analysis?	(circle one)	Yes	No
No, explain:			

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (27-1)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary fitter area (mm2)	385
Secondary Filter Area (mm2)	385
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	ൾ
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1584
Date received by lab	5/20/2009
Lab Job Number:	270900123
Lab Sample Number:	270900123-000 <b>3</b>
Number of grids prepared	3
Prepared by	R. Pescador
Preparation date	5/26/2009
EPA COC Number:	5/19/2009
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	5/ <b>26</b> /2009
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	I A
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	AHERA
Grid storage location	2709-EMR-49, C
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

## F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right---->

e one):
<b>25:1</b>
0.5
None

Stopping Rules:	***************************************
Target Sensitivity:	0.005
Max # of GOs:	10
Target # of Structures:	

## F-factor Calculation:

Indirect Prep Inputs Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0] First resuspension volume or rinsate 100 volume (mL) Volume applied to secondary filter (mL) or used for serial dilution

Inputs for S	Serial Dilutions
	Second resuspension volume (ml
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter Fraction of secondary filter used for

Grid	Grid Opening	Structure	No. of St	ructures	Dime	nsions	Identification	Mir	eral Class	(see belo	w)	Skatah/Commants	1 = ye	s, blank	= no	Fract.
510	Cha Opening	Туре	Primary	Total	Length	Width	Identification	LA	OA	С	NAM	Sketch/ Comments	Sketch	Photo	EDS	GO Chrys.
i	c9	ND														
	07	NO														
	CS	NO														
	C3	20														
	0	No														
2	B9	QN														
	<b>B</b> 7	4														
	<b>b</b> 5	Q														
	ВЗ	ND														
	BI	ND														

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one): H Horizontal

∨ertical

Are prepped grids acceptable for analysis? (circle one) Yes No If No, explain:



≥ 5:1

0.5

None

Recording Rules:

попе

Minimum Length (um):

Minimum Width (um):

Stopping Rules:

F-factor Calculation:

Indirect Prep Inputs

Minimum Aspect Ratio (circle one):

≥3:1

#### **BNSF 2009 OSHA TEM Asbestos Structure Count**

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II(27-2)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	P,013
Scale: 1L =	
Scale: 1D =	1
Primary filter area (mm2)	38C
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	o <b>4</b>
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1382
Date received by lab	5/20/2009
Lab Job Number:	270900123
Lab Sample Number:	270900123-0004
Number of grids prepared	
Prepared by	
Preparation date	
EPA COC Number:	5/19/2009
Secondary filter pore size (urn)	0.2

Analyzed by	
Analysis date	
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	Ð
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	Yes
Counting rules (ISO, AHERA, ASTM)	AHERA
Grid storage location	
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

Target Sensitivity: 0.005 Max # of GOs: 5 Enter data in appropriate cells provided to the right----> Target # of Structures:

## F-Factor Calculation (Indirect Preps Only):

Fract. No. of Structures Dimensions Mineral Class (see below) 1 = yes, blank = no Structure Grid Opening Grid Identification Sketch/ Comments GO Type С Primary Length Width LA OA NAM Total Sketch Photo EDS Chrys.

	Volume applied to secondary filter (mL) or used for serial dilution
Inputs fo	or Serial Dilutions
	Second resuspension volume (mL)
	Volume applied to secondary filter

volume (mL)

Third resuspension volume (mL) Volume applied to secondary filter

Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0] First resuspension volume or rinsate

Input for Ashing of Secondary Filter Fraction of secondary filter used for ashing

(mL)

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal

V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No If No, explain:

Laboratory name:	EMSL27
Instrument	JEOL 100 CX(1(27-7)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0,013
Scale: 1L =	1
Scale: 1D =	. 1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

and the second s	
EPA Sample Number:	04
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1382
Date received by lab	5/20/2009
Lab Job Number:	270900123
Lab Sample Number:	270900123-000 <b>4</b>
Number of grids prepared	3
Prepared by	R. Pescador
Preparation date	5/26/2009
EPA COC Number:	5/19/2009
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador	
Analysis date	5/ 27 /2009	
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	ı A	/
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	-No. YES	2/2
Counting rules (ISO, AHERA, ASTM)	AHERA	
Grid storage location	2709-EMR-49, <del>D</del>	יאטן איטן איז
Archive filter(s) storage location	Westmont	
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA	

F-Factor Calculation (Indirect Preps Only): Enter data in appropriate cells provided to the right----> Recording Rules: Minimum Aspect Ratio (circle one): none ≥ 3:1 (≥ 5:1 Minimum Length (um): 0.5 Minimum Width (um): None

Stopping Rules:	
Target Sensitivity:	0.005
Max # of GOs:	10
Target # of Structures:	Appell of the second of the se

Grid	Grid Opening	Structure	No. of St	ructures	Dime	nsions	Identification	Mir	Mineral Class (see below)		Sketch/ Comments	1 = yes, blank =		= no	Fract. GO	
	Cha Opening	Туре	Primary	Total	Length	Width	Identification	LA	OA	С	NAM	Sketch/ Comments	Sketch	Photo	EDS	Chrys.
1	J)	N)														
,	<i>I</i> 3	ND														
	IZ	ND														
	<b>I</b> 7	ND														
	<b>I</b> 9	ND														
2	P10	No														
	D8	NÞ														
	X	ND														
	74	ND														
	DZ	ND														

-factor	Calculatio	n

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0] First resuspension volume or rinsate 100 volume (mL) Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

10 25 Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter

Input for Ashing of Secondary Filter

Fraction of secondary filter used for

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one): H Horizontal

V Vertical

Are prepped grids acceptable for analysis? (circle one) If No, explain:



<b>6</b>	No
(es)	No

65.1

0.5

None

### BNSF 2009 OSHA **TEM Asbestos Structure Count**

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II(27-2)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0,013
Scale: 1L =	1
Scale: 1D =	1
Primary fitter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	0.57
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1573
Date received by lab	5/20/2009
Lab Job Number:	270900123
Lab Sample Number:	270900123-0005
Number of grids prepared	
Prepared by	
Preparation date	
EPA COC Number:	5/19/2009
Secondary filter pore size (um)	0.2

Analyzed by	
Analysis date	
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	Yes
Counting rules (ISO, AHERA, ASTM)	AHERA
Grid storage location	
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

Stopping Rules: Target Sensitivity: 0.005 Max # of GOs: 5 Target # of Structures:

Recording Rules:

попе

Minimum Length (um):

Minimum Width (um);

Minimum Aspect Ratio (circle one):

≥31

## F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right---->

						<del> </del>										
Grid	Grid Grid Opening Structure	1 Opening Structure		ructures	Dimensions Identification	Mineral Class (see below)			Sketch/ Comments	1 = yes, blank = no			Fract. GO			
lype Primary	Total	Length			LA	OA	С	NAM		Sketch	Photo	EDS	Chrys.			
		0	VER	COY	DEI	7	100	UZ.	MAT	ERI	AL					
													-			
															-	
											·					

F-factor Calculation: Indirect Prep Inputs

> First resuspension volume or rinsate volume (mL) Volume applied to secondary filter (mL) or used for serial dilution

#### Inputs for Serial Dilutions

Second resuspension volume (mL)

Fraction of primary filter used for indirect prep or ashing (For dust and dustfall, enter 1.0)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL)

## Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

Horizontal

V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No If No, explain:

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (27-1)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.03
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	340
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

Structure

Grid Opening

No. of Structures

	<del>,</del>
EPA Sample Number:	05
Sample Type (A=Air, D=Dust, DF = Dustfail):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1373
Date received by lab	5/20/2009
Lab Job Number:	270900123
Lab Sample Number:	270900123-000 <i>5</i>
Number of grids prepared	3
Prepared by	R. Pescador
Preparation date	5/26/2009
EPA COC Number:	5/19/2009
Secondary filter pore size (um)	0.2

5/26/2009
I A /
ARP PILLION
AHERA
2709-EMR-49, D
Westmont
Not QA

## F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right---->

Recording Rules:		
Minimum Aspe	ect Ratio (circ	le one):
none	≥ 3:1	≥5:1
Minimum Length (um):		0.5
Minimum Width (um):		None

Stopping Rules:	
Target Sensitivity:	0.005
Max # of GOs:	10
Target # of Structures:	

F-factor Calculation	۰

Fract.

Indirect Prep Inputs

17	indirect prep or ashing [For dust and dustfall, enter 1.0]
100	First resuspension volume or rinsa volume (mL)
10	Volume applied to secondary filter

Inputs	for Seria	I Dilutions

Imputs for C	Perial Dilutions
100	Second resuspension volume (mL)
25	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

nput for As	hing of Secondary Filter
	Fraction of secondary filter used for ashing

Grid	Grid Opening	Siluciuie					<ul> <li>Identification</li> </ul>	(			Sketch/ Comments	, you, blank no			GO	
		Туре	Primary	Total	Length	Width	ide i i i i di i i i i i i i i i i i i i	LA	OA							
1	c9	ND														
	9	ND														
	Cr	ND											24.11			
	<i>C</i> 3	ND														
	CI	M														
2	D10	ND														
	⊅8	NO														
	D60	No														
	<b>D</b> 4	NO		- "												
	DZ	ND														

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

Dimensions

C = Chrysotile

Mineral Class (see below)

NAM = Non-asbestos material

1 = yes, blank = no

Grid opening traverse direction (circle one): H Horizontal

• • •	1 1011201
5	Vertical
ك	v Qı uçal

Are prepped grids acceptable for analys	is? (circle	one) (	(69)	No	
ff No, explain:					

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II(27-2)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	
Scale: 1D =	
Primary filter area (mm2)	387
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	06
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1300
Date received by lab	5/20/2009
Lab Job Number:	270900123
Lab Sample Number:	270900123-000 6
Number of grids prepared	
Prepared by	
Preparation date	
EPA COC Number:	5/19/2009
Secondary filter pore size (um)	0.2

Analyzed by	
Analysis date	
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	Yes
Counting rules (ISO, AHERA, ASTM)	AHERA
Grid storage location	
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right---->

Recording I	Rules:	
Minimum A	spect Ratio (circl	le one):
none	≥3.1	<b>(25:1)</b>
Minimum L	ength (um):	0.5
Minimum W	/idth (um);	None

								100	
883									
Stopping Rules:									
SINDDING LINES									
									100
Secretary and the contract of						in a second			
							* * * * * *		
Tanana Cananaka da					100				
Target Sensitivity:						- 41	TH	1	
								•••	
				1111		1000		***	
4								000	
300								100	
Attacked to the contract of th									
Management of the second								100	
Max # of GOs:									Cris a a s
						- 2			
				1100				100	
					1000				
						100	-		
THE COLUMN THE COLUMN TWO IS NOT THE COLUMN TO THE COLUMN THE COLU									
Target # of Structi	III	c,				>			
raigot ir or ottact	<b>u</b> , <b>c</b>	•	1111	1111		100		4.00	. 11110
	1000								

Grid	Grid Opening	Structure No. of Structures Dimensions Identification Mineral Class (se	ass (see below) Sketch/ Comments		1 = yes, blank = no			Fract. GO								
		туре	Primary	Total	Length	Width	Identification	LA	OA	С	NAM	Sketch Confinents	Sketch	Photo	EDS	Chrys.
		OV	ERI	vH.	091	) 4	LOC	IE.	MA	781	CIA	2				
		TIMPACE. MIL.														
								_							, , , ,	
										-						
						·										

F-factor Calculation	<u>1:</u>
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Indirect Prep Inputs
Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]
First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for S	Serial Dilutions
	Second resuspension volume (mL
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter
Fraction of secondary filter used for ashing

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal

V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No If No, explain:

Laboratory name:	EMSL27
Instrument	JEOL 100 CXII (272)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0,013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	385
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

Structure

Type

ND

25

ND

ND

No

ND

网

NO

ND

No. of Structures

Total

Primary

EPA Sample Number:	0 %
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1300
Date received by lab	5/20/2009
Lab Job Number:	270900123
Lab Sample Number:	270900123-000
Number of grids prepared	3
Prepared by	R. Pescador
Preparation date	5/26/2009
EPA COC Number:	5/19/2009
Secondary filter pore size (um)	0.2

Identification

LA

R. Pescador 5/ 27 /2009	
YES P	W 1010
AHERA	
2709-EMR-49, D	
Westmont	
Not QA	
	2709-EMR-49, D Westmont

F-Factor Calculation (Indirect Preps Only):

Sketch/ Comments

Enter data in appropriate cells provided to the right---->

Sketch

Recording Rule	<u>\$:</u>					
Minimum Aspect Ratio (circle one):						
none	≥ 3:1	5:1				
Minimum Length	n (um):	0.5				
Minimum Width	(um):	None				

Stopping Rules:	
Target Sensitivity:	0.005
Max # of GOs:	10
Target # of Structures:	

### F-factor Calculation:

Fract.

GO

Chrys.

Indirect Prep Inputs

1.0	Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
100	First resuspension volume or rinsate volume (mL)
10	Volume applied to secondary filter

## Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter

Input for Ashing of Secondary Filter
Fraction of secondary filter used for

LA = Libby-type amphibole

42

Grid

2

Grid Opening

F3

D2

25

DO

HIO

48

46

OA = Other (non-Libby type) amphibole

Dimensions

Width

Length

C = Chrysotile

Mineral Class (see below)

С

NAM

OA

NAM = Non-asbestos material

1 = yes, blank = no

Photo

EDS

Grid op	ening traverse direction (circle one):	
н	Horizontal	

	1 10112
Ø	Vertica

Are prepped grids acceptable for analysis? (circle one)	€	No	
If No, explain:			
· · · · · · · · · · · · · · · · · · ·			